Change (and continuity) in Domestic Space Design:

a comparative study of nineteenth and early twentieth century houses in Britain and Recife ~~- Brazil~~

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ABSTRACT

This thesis investigates the spatial configuration of late nineteenth and early twentieth century houses in Britain and Recife, Brazil. Its underlying purpose is to verify whether the British preeminence over the country's economical and political life of that period, a fact thought to have promoted alterations in socio-cultural modes of behaviour, has left any detectable traces in the way houses are designed to enable the realisation of those modes in space.

The central assumption of the methodology — known as *space syntax* —applied to this research is that cultural ideas are present in buildings as they are present in the minds of their designers and inhabitants. It follows that a study of the spatial structures of houses in Britain and Recife, a major focus of British presence in Brazil, could reveal the extent of the influence of one culture over the other, as well as contribute to further the knowledge of the domestic architecture in both countries.

House plans designed between 1840 and 1930 in Britain are analysed and results compared with those drawn from the investigation of dwellings in Recife. These provide representative examples of the housing panorama before and after the arrival of British residents in the city.

The work attempts to show that the spatial configuration of post-colonial houses built during and immediately after the period in which the British presence in Recife was stronger defines a theme of cultural continuity. This helps to refute the myth that these houses are testimonies of a culturally debased architectural period. It also minimises the importance of the role that the British presence in Recife might have had in reshaping cultural modes of behaviour.

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INTRODUCTION

The wish to unveil the essence of the pre-modernist Brazilian house was what originally moved the present piece of research.

Whereas colonial architecture has long represented the cherished inheritance of Luso-Brazilian cultural roots and modern architecture, the giant step to set pace with the world and enter modernity, post-colonial eclectic buildings were viewed by the generation of modern architects, their disciples and their disciples' disciples, as testimonies of years of cultural submission to foreign models and, thus, regarded with the utmost contempt as they crumbled daily under the work of bulldozers.

Although their status as shameful evidences of a phase to be forgotten in the history of Brazilian culture has been reviewed in the past decade and a few studies scattered up and down the country have indirectly contributed to measures for preserving a few selected examples, the products of the eclectic architectural period continued to be systematically wiped out of townscapes. Currently, the picture is, by and large, still one of ignoration and eminent extinction.

This is particularly true of Recife where an extensive ensemble of colonial buildings concentrates most academic attentions and drains the efforts of struggling but powerless preservation agencies, constantly defeated by financial and political interests.

The spatial layout of eclectic houses in Recife has not deserved any systematic study but the assumption that they are bastardised offsprings of foreign influence still lingers and serves as an excuse for much dilapidation, particularly aimed at these buildings since for many decades they constituted the suburban dwelling *par excellence* thus tending to occupy larger plots, greatly coveted by developers and estate agents, in some of the town's most expensive residential areas.

Furthermore, the suburban mode of residence itself has also been regarded as a by-product of foreign influence, or more specifically, of British influence as these nationals constituted the vast majority of foreign residents in Recife, during the nineteenth and early twentieth century, and are thought to have played a decisive role in turning various holiday resort areas around the town, into fashionable suburbs. British residents have also been seen as agents of transformation concerning various aspects of the colonial existence, particularly as promoters of new modes of social behaviour which helped debunk traditional codes.

Guided by the belief that domestic space is organised according to rules generated by patterns of socio-cultural behaviour, it was thought that a comparative study between the spatial configuration of houses in Britain and Recife would reveal traces of continuity and/or change in domestic design to account for alterations in modes of behaviour within households. Three bodies of data were investigated and results compared: 1) plans designed from mid-nineteenth century to World War I, in Britain; 2) plans of houses built according to the architectural rules prevailing before the arrival of British residents in Recife; and 3) houses built during and after the period in which this presence was stronger. Such a study is expected to clarify myths of 'illegitimacy' surrounding eclectic houses and, at the same time, illuminate the extent of British influence over Brazilian culture.

More importantly, it contributes to the knowledge of late nineteenth and early twentieth century British houses, in terms of spatial configuration, and establishes an initial framework for the systematic study of the spatial structure of pre-modernist houses in Recife.

The study develops as follows:

Chapter 1 identifies the problem, discusses some perspectives for approaching it and the reasons for choosing space syntax as the theoretical framework and main analytical tool. The data and the techniques used to investigate it are described.

Chapter 2 outlines a general picture of British houses in terms of interior layout and categorises these dwellings into socioeconomic clusters. The availability of rooms designed to accommodate essential functions is investigated across class and time as are the labels used to identify these spaces in the plans. Some textual references on British houses are reviewed.

Chapter 3 deals with global models of spatial configuration in a large sample of British plans viewed as complexes of interior spaces. Average syntactic measurements that translate different spatial structures are analysed as are the patterns of hierarchy which reveal varying levels of accessibility among chief day functions. Patterns of integration and differentiation in the complexes and mainstream models of function hierarchy are identified and investigated across class and time.

A sub-sample representative of models of spatial configuration prevailing among prewar middling British homes is analysed in *chapter 4* through a case-by-case study. Findings resulting from the observation of the full sample in chapter 3 are verified, illustrated and complemented. The way the complexes of interior spaces relate to the exterior is examined. A brief insight on postwar British plans is attempted.

Chapter 5 describes the housing panorama of Recife, from colonial times to the 1930's and defines, in broad lines, morphological aspects that characterise colonial and post-colonial domestic architecture in terms of their built shells so that the plans to be analysed can be placed in time.

Chapter 6 analyses colonial house plans and examines how findings relate to patterns of cultural behaviour as described in textual references. The investigation of a few cases recurrently referred to as models of colonial dwellings introduces the study followed by a case-by-case syntactic analysis of buildings still surviving in Recife. The study develops in similar lines to those concerning the sub-sample of British plans.

Again, in *chapter 7,* analytical procedures equivalent to those applied to the British sub-sample and to colonial house plans are developed to examine a sample of existing post-colonial houses. Results are compared to those from the previous chapter. Patterns of spatial configuration common to both periods are sorted out from contrasting ones, thus enabling the assessment of evidences of cultural continuity or of cultural change between the two periods.

Chapter 8 concludes the study by comparing the three samples — colonial, post-colonial and British — and attempts to show that the logic underlying the spatial structures of post-colonial houses strongly defines a theme of cultural continuity. It also seeks to demonstrate that the differences in spatial configuration between colonial and post-colonial houses point in an opposite direction to that of prewar British homes. This fact minimizes the effect that the British presence in Recife might have had in reshaping cultural modes of domestic behaviour and offers a new perspective for the reasons behind the development of seasonal buildings into suburban residences.

CHAPTER 1

A QUEST, SOME ROUTES AND AN ACT OF FAITH

Buildings like poems and rituals realise culture. (Henry Glassie)

1.1. The problem

Significant alterations in modes of social behaviour in nineteenth century Brazil have been attributed to the influence of British residents in the country's larger towns. This study aims at verifying whether the British presence in Recife, capital of Pernambuco, and major urban centre in the North and Northeastern regions at the time, has left any detectable traces in the way that the spatial configuration of dwelling houses has altered in time.

According to Manchester[1], the British preeminence in Brazil, whose foundations may be traced to seventeenth century Anglo-Portuguese treaties, reached its zenith as concerns political issues between 1825 and 1827. Yet, the author maintains, ... *Great Britain was able to maintain its position of economic supremacy in Brazilian shipping, markets, and investments throughout the nineteenth century.*

Although threatened by Germany before 1914 and by the United States during the war years, the commercial and industrial supremacy that substituted political 'favour' in guaranteeing the continuity of long-term privileges, lasted well into the twentieth century. Besides import and export dealings as well as some industrial activities, in the second half of the nineteenth century the British were building railways, installing gas works, digging and connecting water reservoirs, erecting bridges, working telegraph companies, operating banks, installing and managing light and sewage services and running public transport systems in various provinces. *By 1913 the assets of the British*

[1] Manchester, Alan K. British Preeminence in Brazil. Its Rise and Decline. A Study in European Expansion, The University of North Carolina Press, Chapel Hill, 1933, pp.337-340.

banks operating in Brazil constituted almost 30% of the total assets of all banks, national and foreign, and over 57% of the assets of all foreign banks [2] ...

In Pernambuco, a centre of British interest for over half a century, the first railways were of British make — all plant materials, labour, locomotive workshops, public telegraph line along the way, and staff having been imported from Britain — and so were the first gas company, water reservoir and distribution system.

In Recife where British import and export houses prospered, the greater part of whatever came in and out of its port did so through British ships and firms; two English banks and two telegraph companies had branches there; the light, gas and sewage systems belonged to a British company and so did the tramways; one of the main bridges connecting the city to neighbouring areas had been built by English contractors and a cotton press was under British control.

Manchester states that although ... *by the end of 1929 the United States was successfully rivalling Great Britain in the buying and selling markets of Brazil ... in the fields of shipping and investments, English preeminence was still virtually unchallenged.*[3]

Modern steelworks and sugar mills, submarine cables, railways, telegraph systems, steamboats, buses and trams, gas lighting and sewage works do not exhaust the list of innovations introduced by the British. Gilberto Freyre[4] attributes to English influence an endless array of novelties which, besides major assets like the institution of the popular jury and the *habeas-corpus* , range from daily habits such as drinking tea and beer, eating wheat bread and beef-cum-potatoes, reading detective stories and playing ball games, to environment related attitudes like that of viewing a water closet as one of the home's essentials and choosing a country house as a permanent residence.

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[2] Idem, p.327.

[3] Idem, p.336.

[4] Freyre, Gilberto. Ingleses no Brasil. Aspectos da influência Britânica sobre a Vida, a Paisagem e a Cultura do Brasil, José Olympio Ed., Rio de Janeiro, 1948, p.56.

Freyre[5] maintains that the massive British presence, and specially that of the many traders and their families established in the town since 1808, turned Recife into one of the most intensely irradiating foci of British influence in Brazil and contributed to alter environmental as well as cultural patterns.

An idea of that presence's scope in 1845 is given by the number of commercial firms established in the city, where twenty-seven Brazilian companies shared the market with nine Portuguese, eight French, seven German, three American, two Dutch, two Swiss and twenty British ones.[6] The author cites Mansfield[7], who estimated a community of over three hundred British residents in the second half of the nineteenth century in Recife alone, pointing out that, at the time, the town's population did not exceed seven thousand inhabitants, of which a third were black slaves.

English residents, Freyre[8] sustains, motivated by higher demands in domestic comfort and hygiene, favoured isolated houses to the tightly packed *sobrados* (multistoried houses) of Portuguese origin and soon spotted the best and healthiest outer sites. This shift, he claims, helped to alter the ecological nature of upper class dwellings which began to move from the narrow winding lanes of the older towns to wood-sheltered sites, river banks and sea-side resorts in Rio, Bahia and Pernambuco. Large isolated houses, former seats of *chácaras* and *sítios* (small country estates in the vicinity of a town), and even of sugar plantation farms were adapted to British standards and often linked as far as possible to urban settlements. Originally used as holiday dwellings during the summer (or dry) season, these buildings were turned into permanent homes by the newly arrived.

Maria Graham[9] describes her fellow countrymen as living in such houses at least during the evening after having left their 'counting houses' located in central sobrados behind, for the day. It gradually became unfashionable for the well-to-do to reside in town centres whereas outer resorts and hamlets

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[5] Idem, (passim)

[6] Idem, p.80.

[7] Mansfield,Charles B. Paraguay, Brazil and the Plate, Cambridge, MDCCCLVI, in Freyre, op.cit.p.84.

[8] Freyre, op.cit.p.183-184.

[9] Graham, Maria Journal of a Voyage to Brazil and Residence There, during the years 1821, 1822, 1823. Longman, Hurst, Rees, Brown, and Green, and J.Murray, London, 1824, p.98.

began to develop into suburbs and to enjoy an ever increasing social and economical status. Once settled in a *chácara* or *sítio* house, the English resident would 'Anglicise' them in whatever possible way by trying, for instance, to make grazing fields look like lawns, by extending gardens, by adding halls and water-closets to interiors. Halls and water-closets, identified by their English words in building plans and everyday speech to this day, would constitute, according to Freyre[10] , two basic alterations to be immediately carried out by the new settler. However, the author believes that most conversions to meet British requirements did not disfigure what he terms as ... *the best traditions of Brazilian architecture* ... and that travelled Brazilian *nouveau-riches* , eager to reproduce at home the novelties seen in Northern Europe, were the ones to blame for building houses that look better fit in the poles than in the tropics. On the other hand, conversions of old traditional country houses, he reckons, seem to have gradually become models for rich, genteel Brazilian families.

Although not clearly stated, Freyre's account of the suburbanization and *eclecticization* processes suffered by nineteenth century Brazilian built environments implies that English settlers by having higher domestic standards of comfort and hygiene altered the patterns of urban growth as well as some of those within domestic interiors. Also suggested is that because the British were such a 'civilised' and thoughtful people they were careful not to tamper with the intrinsic virtues of the Brazilian country house. Traditional rich families, enlightened enough to recognise the excellence of the new model, were happy to follow suit, an attitude beyond the intellectual awareness of the *nouveau riches* who could not help the urge to ape and display whatever they came across in marvellous Europe.

The house of residence is a recurring theme in Freyre's vast academic output which has been the target of fierce criticism on the grounds of his unscientific approach and ideologically biased view of the relations among social classes, especially those between masters and slaves and between the residents of urban *sobrados* and their neighbouring *mucambo* (shanty) dwellers. Many who criticise Freyre's work share his views on the importance of the dwelling as material realisation of social phenomena. However, little have they done to

[10] Freyre, op.cit.pp.186 and 215.

counteract that author's assumptions about domestic buildings, or to investigate Brazilian houses in a systematic way.

Yet, these houses are yearly buried, by the hundred, under high-rise buildings in towns all over the country, shrouded in quiet indifference. Amongst these losses, pre-modernist middle-class suburban houses, and their large grounds scattered in some of the most expensive residential areas, are the particular targets of developers seeking sites for luxury apartment blocks.

The ensemble which is being bulldozed out of existence constitutes precisely the evidence of a century-long succession of more or less conspicuous alterations in built shells and plans which would clarify issues not only of an architectural character (since these houses bridge colonial tradition and international modernism) but also of a cultural nature. Behind the so-called eclectic period lies a heated debate which has generated many contradictory theories about the nation's cultural ethos of which the nineteenth century features as a crucial turning-point.

Long-term assumptions concerning the cultural nature of the Brazilian society contributed to a massive disregard of the country's eclectic architecture in general, particularly that of domestic buildings. At the heart of the deep contempt for most of the nineteenth century's artistic output, lies the notion of a *transplanted culture* [11], that is, of a plethora of cultural expressions and political ideas borrowed from European industrialised nations, emptied of their original content and worn much in the way of ornaments of erudition, as a means of social ascension by a growing, yet feeble, struggling middle-class. This vision matches Freyre's indirect account of *nouveau-riches*' attitudes towards alien architectural fashions as well as those of various authors who explicitly identify the post-colonial architecture of the nineteenth and early twentieth century with an outburst of *ideas out of place.* [12]

It has been maintained that to the same degree that liberal thought, which disguised social exploitation in industrialised countries, had, in principle, no

[11] Sodré, Nelson W. Síntese de história da cultura brasileira, DIFEL, São Paulo, 1984, (passim).

[12] Schwartz, Robert. *As idéias estão fora do lugar* in Ao vencedor as batatas, Duas Cidades, São Paulo, 1977, pp.14-18.

place in a slavist society, a revival of past traditions in a country where those expressions had never thrived was equally nonsensical . Whether they be ideas about free enterprise, portrayals of historic glories on canvas, or stuccoed 'Greek' mouldings to ornament façades, as the others supposedly did to minds and interiors, nineteenth century expressions appeared to strike an uncomfortable chord in national pride as shameful stuffings of a cultural void best forgotten. The focus of academic attention on the architectural history of the country thus concentrated mainly on the prized *good old colonial tradition* or on modern 'Brazilian' architecture, both perceived as having an almost autochthonous nature.

It is believed here that in Brazil, as anywhere else, widespread ideas and cultural expressions are *never* out of place, no matter how incoherent they appear to be. Sylvia Franco[13] points out that just as liberalism, at its origin, was meant to conceal exploitation, in a society where poverty was general and wealth had always coincided with social status, the argument of abstract equal rights and individual merit disguised the practice of political favour, and performed its role of legitimising hegemonical power as much as it did in its original nations.

By the same token, the architectural changes which contributed to alter three centuries of a relatively homogeneous environment, far from being a decorative veneer motivated by the desire to overcome an age-long cultural 'inferiority' and catch up with trendy Europe or with the lifestyles of foreigners, must be examined in the broader perspective of the events related to the inner process of capitalist development which had brought about the insertion of the country into a new world order of economic differentiation.

Brazil was no longer a remote land of continental dimensions which supplied noble woods, sugar, precious stones, coffee, cocoa and latex at bargain prices to European markets but also a potentially huge market, ripe to be flooded with industrialised goods from railways to ginger biscuits. The immediate opening of Brazilian ports — a preserve of Portuguese traders — to English merchant ships was a paramount issue among the many political and economical privileges readily ensured, while still at sea, by the agents of Her Royal

[13] Franco, Sylvia. *As idéias estão no lugar* in Cadernos de debates 1: História do Brasil, Brasiliense, São Paulo, 1976, pp.62-63.

Majesty, whose Navy escorted the Portuguese Court as it fled the Napoleonic army. The extent of the new trade and the eagerness with which the promising market was being regarded is shown by shipment surveys and newspaper advertisements on incoming merchandise which include items as hilarious as ice-skates.

Iron balconies, gates and railings, window and door panes, cast iron pipes, gutterings and drains were just a few of the advertised products that helped alter the looks of colonial towns, immediately, by substituting glass panes and iron railings for the mysterious shadows of trellis wooden panelling over windows and balconies, and by concealing the long broken lines of red-tiled eaves behind roof parapets. These alterations, later enforced by law on grounds of domestic hygiene and pavement maintenance, were, according to Freyre, a consequence of political pressure by English iron and glass traders. An endless array of home fixtures such as lightning devices, bathtubs, washbasins and toilet bowls also featured among English goods introduced at an early stage in house interiors.

Beyond the surfaces of glass and iron elements on the façades, a broader set of alterations was about to take place. These, it is believed, were essential for meeting, in environmental terms, the requirements posed by a new order which, although not motivating a social revolution, affected human relations at every level. The descendants of plantation owners may have remained as ruling class in the guise of the 'modern' industrialist or financier, and most unquestionably did, but much of what their fathers and grandfathers had enjoyed in terms of unchallenged patriarchal power, half a century before, was lost in the process. In the domestic realm, subtle spatial alterations constituted, it is believed, an effort for coping with and providing for new household relations and practical demands, one of which was the decline in the availability of slave labour.

The present study attempts to investigate those changes in houses of Recife and, by comparing them to the spatial configuration of British dwellings at the time, seeks to verify whether the British presence in the city had any major relevance in the way domestic space was organised in houses whose overall appearance had parted with — even if only partially — the morphological repertoire of colonial times.

A survey[14] of pre-modernist houses still surviving, between 1985 and 1988, in areas around Recife's commercial and financial centre identified over 1,600 cases which were analysed and classified according to the occupation of the buildings in their plots, the exterior shape of their built shells and their stylistic affiliations. The inventory revealed a continuous line of development linking colonial inheritance to the *neo-colonialist* trend of the 20's and 30's by identifying a richness of typological nuances generated by the amalgamation of diverse — coexisting or successive — morphological 'grammars' within which colonial elements could be found alongside twentieth century ones.

Despite the fact that certain features recurrently combined, sometimes in a fairly exclusive fashion, thus characterising what was termed as 'basic types', hybrid buildings, as mentioned above, outnumbered by far the houses which displayed a more or less conspicuous commitment to a certain morphological repertoire. This suggested that the idea of a period of alien transplantations could only reside in a fragmented vision of the environmental whole from which buildings were selectively plucked and generalised as the architectural products of an epoch. By revealing that lingering amalgamated patterns predominate over novel ones the referred survey appeared to overturn the belief that there had been a rupture in traditional morphology. Therefore not only was the impropriety of the *ideas-out-of-place* assumption emphasised but also that of a perspective which places colonial and eclectic architecture as opposing manifestations.

The denial of long term assumptions concerning eclectic buildings was a central theme in a previous academic work[15] and provided the impetus and key directions for the present study which shifts the focus from exterior patterns to internal spatial structures.

The basic hypothesis of the present study is that the innovations which affected not only built shells but also their ground plans rather than constituting a

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[14] Trigueiro, Edja BF. Inventário da arquitetura doméstica do Recife. Fundação Joaquim Nabuco, Recife, 1988.

[15] Trigueiro, Edja BF. Oh de fora! Um estudo sobre a arquitetura residencial pré-modernista do Recife, MA thesis, Mestrado em História, UFPE, Recife, 1989.

rupture with centuries of colonial inheritance as has been claimed, were nothing other than the progressive addition of subtle spatial alterations to enable a mutating set of domestic human relations to be realised in space. If this is the case the assumption that places all things post-colonial and pre-modernist as evidences of a cultural void will again be refuted and exposed as a distorted perspective viewed through the lens of a cultural inferiority complex.

Yet, it is believed that far more important than refuting myths and theories or forwarding an operational hypothesis, is the investigation of overlooked themes of vernacular architecture such as the neglected Brazilian middle-class dwelling. In these terms, the study of basic aspects of spatial configuration within British and Brazilian houses, which follows, aims, first and foremost, to further the knowledge of the domestic architecture in both countries.

Therefore, rather than resting solely on the testing of a hypothesis, this thesis seeks to disclose principles underlying the spatial structures in domestic buildings, through a dialogue between textual references and the empirical investigation of samples of British plans and colonial and post-colonial (or eclectic) houses of Recife. The data was submitted to analytical techniques ascribed to the methodology generally known as *space syntax* which lends the main research tool and provides the general theoretical framework for the study.

Key points to be raised were: 1) which spatial patterns prevail in British house plans and, provided they can be identified, whether these vary across social class and time; 2) what patterns predominate in British middle class homes — the ones more likely to have served as models for houses in Brazil; 3) which spatial models prevail in colonial and post-colonial houses in Recife; 4) which patterns are common to both colonial and post-colonial houses and which differ and if contrasting features between the two sets of Brazilian houses are found, 5) whether these point in the direction of British spatial systems.

At the heart of space syntax methodology is the assumption that ... *cultural ideas are objectively present in artifacts as much as they are subjectively* *present in minds.*[16] Regardless of the hypothesis being proven, it is hoped that this work will 1) further the knowledge of Victorian and Edwardian domestic space; 2) contribute and incite to a systematic investigation of pre-modernist houses in Recife and 3) dispel myths and clarify the extent of the British influence over socio-cultural issues in Brazil.

1.2. **The method**

1.2.1. **On the built form and some paradigms**

In the past decades the focus of architectural studies has sprawled from celebrity designed works-of-art to vernacular (or primitive, or folk, or popular) buildings. This went hand-in hand with a shift from an exclusive concern about aesthetical and stylistic matters to a search for the relationship between buildings and those for whom they were ultimately built.

As architecture ceased to be viewed solely as the finished creation of demigods to be regarded as social product and social process a search for identifying theories that enabled the study of this process or for modifying existing ones to meet the specific requirements of the architectural artefact, thrived alongside efforts for constructing them anew. The investigation of buildings became less an object of study for arts and architectural historians, or for architects in general, but mostly the domain of those whom, by virtue of trade, engage in the task of dissecting as well as of producing theories, some in the hope of arriving at a universally valid one.

Thus, for the architect concerned with empirical research on buildings the obvious advantages of this expansion in the horizons of architectural knowledge implied a huge effort to manage concepts — mostly only half grasped — from an increasing range of academic disciplines and to approach the object through routes often not devised to lead to buildings in the first place. This unremitting borrowing of 'analogies' from outside architecture in a never-ending quest for the ultimate analytical theory of the built form or for

[16]Hillier B, Hanson J & Graham H. *Ideas are in things: an application of the space syntax method to discovering house genotypes* in Environment and Planning B: Planning and Design, 1987, vol.14, pp.363-385.

(disguisedly or not) strengthening normative ones, has bedevilled the toils of many a novice architectural researcher, trapped into this merry-go-round of approaches as he, or she, searches, in vain, for the path towards the object of interest.

Zevi[17], writing in the late fifties, identified three major lines of interpretation — content, physio-psychological and formalist — adopted by historians as their principal method. To each, he states, ... *some observations that derive from the other two methods* ... are usually added. The reason why he placed *content* as the first interpretation can almost certainly be attributed to the fact that whatever their theoretical trend, scholars did not, even then, seem to argue on a social content knitting the masses and voids of the built form. At least, ever since Winckelmann[18] strove to fit his theory of the aesthetic perfection of the Greek art into his belief in the aesthetic perfection of the Greek nature, architectural theoreticians have been presenting buildings as evidence for socio-cultural assumptions.

Two 'classical' instances of attempts to span the gap between architecture and society were Wölfflin's[19] endeavour to reconstruct the character of an epoch (*Lebensgefüh*), a determinant to the artist's formal imagination which, he believed, was expressed by the built form, and Frankl's[20] application of analytical categories to buildings so that *purposive intention — ... the practical and material certainty of purpose that determines the building programme and hence the spatial form ...* — could be unveiled.

The two apparently inverted directions trodden by Wölfflin and Frankl — one proceeding from a cultural image, the other from its product — illustrate a move from the idea that knowledge comes from minds (reason) to one based on the assumption that it comes from objects (the real world). Colquhoun[21] associates this shift with the loss of ... *fixed archetypes to which one could appeal* ... following the post-Hegelian change of attitude towards history which

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[17] Zevi, B. Architecture as Space. Horizon Press, 1957, pp.214-223.

[18] Winckelman, Johan J. Reflections Concerning the Imitation of the Grecian Artists in Painting and Sculpture, Glasgow, 1766.

[19] Wölfflin,H. Renaissance and Baroque, Collins, London, 1964, p.75

[20] Frankl, P. Principles of Architectural History, p.161

[21] Colquhoun, A. *Historicism and the limits of semiology* in Essays in Architecture Criticism. Modern Architecture and Historical Change, Oppositions, 1986, (1st.ed. 1972), pp.129-138.

started to be seen as a process after relativity entered it. As Engels (quoted by Colquhoun) had put it: "*It is no longer a question ... of inventing interconnections ... out of our brains, but of discovering them in facts.*" Since ... *it was no longer possible to believe that a person in a particular period could, simply by introspection, discover the form of society, the language, and the aesthetic mode that was true for all time* ... truth could only be discovered by taking observable entities as objects of study. Some, therefore, thought that the operationalism at the basis of dialectical materialism could be transposed to architecture whose utilitarian nature had it lingering somewhere between the superstructure and the infrastructure in Marxist thought.

However important historical materialism may have been for the development of theories on *why* buildings were produced rather than on *how* they should be produced it did not prevent dogmatic thinking creeping back into the heart of architectural analysis. An instance of how ... *developing theory became dogma* ... can be seen in the effort for investigating the *why* 's of architecture by means of a ... *complete and systematic re-examination of human needs* ... that happened in the 1920's and 30's, having led to very normative propositions and to the production of ... *symbols of what a new architecture might be* ... as Sir Leslie Martin,[22] in his insight on the processes that cause form to exist has observed.

Materialist approaches to architecture are, more often than not, a maze of painfully woven chapters on economical considerations held together by a long awaited for final insight on the object proper. At best, this final bit fails to reach prior expectations and at worst, it reads like a superfluous illustrative afterword that leaves the reader with the uncomfortable feeling of having arrived at a set result.

According to Scruton[23], Marxist (and Freudian) approaches to aesthetics fail partly because by regarding architecture through a cause and effect perspective, and thus by departing from facts that are external to the inner nature of buildings, no intrinsic meaning is attributed to the architectural experience.

[22] Martin, Sir L. *Architects' approach to architecture* in RIBA Journal, May 1967, pp.191-200.

[23] Scruton,R. The Aesthetics of Architecture. Metheun & Co. Ltd., London, 1979, p.158.

Issues on meaning brought the various semiological approaches into the limelight of architectural theories, alongside their refutation, specially aimed at those which view architectural phenomena as a system of signs similar to that of a language. Scholars related to all sorts of theoretical trends unite in amazing unanimity for denying the validity of analogies between architecture and language, although there seems to be as many reasons for such denials as people engaged in discrediting that view.

Scruton[24] stresses the inappropriateness of this type of approach by arguing that in a natural language, rules and structure coincide and may be judged 'correct' or 'incorrect' according to the possibility of truth (or falsity) they carry, whereas in architectural form meaning does not necessarily derive from the obedience to rules which may be modified or, indeed, disregarded and still convey (sometimes even stronger) meaning. Syntax is, therefore, a slave of semantics in language but because a 'semantic structure' is not present in architecture, it does not render itself to analogies with either meaning or syntax, as found in natural languages.

For Colquhoun[25] in a natural language signifier and significant are arbitrarily related, that is, phonic materials are meaningful in themselves and once combined remain ready for recombination into open-ended concepts whereas in non-linguistic sign systems, such as architecture, the axioms that form the content of the structure are not a means to some other end but ends in themselves, lacking the intrinsic given meaning which allows them to be rearranged into new contents.

Bonta[26] blames the paradigm of communication which compares buildings to a statement emitted by the designer to be decoded by its interpreters. He argues that ... *there is no way to be sure that designers 'intend to communicate ' anything at all* and maintains that the paradigm presupposes a designer with ... *almost supernatural powers to anticipate interpretation for generations to come ...* A paradigm of *interpretation* is suggested as an alternative, following

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[24] Scruton, op.cit., pp. 164-178.

[25] Colquhoun, op.cit., p.131 and 137.

[26] Bonta, J.P. Architecture and its Interpretations. Lund Humphries Publishers Ltd., 1979, pp. 63, 211 and 225/6.

the assumption that what matters is not what forms mean but ... *how they mean the various things they do.*

Although semiotic explanations are one of the tools Sanders[27] employs for linking behaviour and architecture, he alerts that the ... *theory of signs alone , ... even if it supplies an alternative model of people-environment interaction, remains just a theory* ...

To Dickens[28], borrowed theories — like semiology — have failed to establish a satisfactory link between social relations and architecture mainly because such theories 'fetishise' design instead of recognising it as a social product. The attention is misfocused on the commodity rather than on the social relations that surround its production and use. He proposes a *theory of (rather than for) design* starting from ... *the interaction between production and ideology.* This brings back historical materialism, its refutations, alternatives and so on.

Five years after Dickens's proposition was made, Mary McLeod[29] introducing a series of texts on architecture and ideology noted that from the utopianism of the modern movement to the eclectic approaches of the eighties all attempts... *to examine architecture's "real connection" to material processes* have failed.

In the meantime buildings crumbled in land and townscape and plans faded way into oblivion in dusty archives.

To Hillier and Hanson,[30] theories from various research fields fail to link society and built form because they sidestep the central problem of the man-made environment as embodiment of social determination in its very artefactual form. They all seem to fall into certain difficulties described by the authors as *the man-environment paradigm* which separates the problem of meaning from the intrinsic nature of the artefact. Because they are of practical and social use, artefacts such as buildings and settlements, belong to both the functional and

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[27] Sanders, Donald. *Behavioral conventions and archaeology* in Kent, Susan (ed.) Domestic Architecture and the Use of Space: an interdisciplinary cross-cultural study. (New directions in archaeology), Cambridge University Press, 1990, p.47.

[28] Dickens, P.G. *Social science and design theory* in Environment and Planning B, 1980, vol.7, pp.353-360.

[29] McLeod. *Introduction* in Architecture and Ideology. Princeton Architectural Press, 1985.

[30] Hillier and Hanson. The Social Logic of Space. Cambridge University Press, 1984.

the meaningful realms and help to constitute, not only to represent, society through the way in which they organise space.

The semiological approach, those authors point out, by studying ... *the environment solely in terms of its power to operate as systems of signs and symbols* ... and by aiming to show how it represents society in a way similar to that of a natural language, views ... *social meaning as something which is added to the surface appearance of an object, rather than something that structures its very form* ... This posture, they state, brings the discussion backwards to ... *the most ancient of the misconceived paradoxes of epistemology, that of finding a relation between abstract immaterial 'subjects' and a material world of 'objects'* ... In this view, the physical environment is emptied of its social content whereas society is devoid of a spatial dimension ... *the former being reduced to mere inert material, the latter to mere abstraction.* By trying ... *to fit architecture into the general field of the artefact semiotics* ... the unique property of the built form among other artefacts — that of ordering space into a pattern — is ignored.

Hillier and Hanson note that because ... *buildings are not just objects, but transformations of space through objects* ... and because this ordering of empty volumes is also the ordering of relations among people, space bridges the gap between function and social meaning, allowing society to enter... *into the very nature and form of buildings.* The *ideas we think with*, whether consciously or unconsciously, during the act of design are, to Hillier[31], the means by which society gets into the architectural imagination. Architectural theories, thus, lie primarily in the framework of assumptions needed to make design possible and in its product — the buildings themselves.

The belief in both space and in the ideas behind its organisation as a key to the understanding of buildings represents no novel view as far as architectural studies are concerned. What causes form to exist, the ideas in the minds of those who design buildings to suit the needs of those who use them has long been a central issue for investigating, for instance, processes of change in architecture.

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[31] Hillier, B. *Why theory? or type, function and the three disciplines of architecture*, seminar presented at the UAS, Bartlett School, UCL, 1990.

The perception of space as the ... *original, intrinsic value of architecture* ... by Geoffrey Scott, whose writings date from the first decades of this century, is acknowledged by Zevi[32] who extends this notion by arguing that the ... *content of architecture is its social content* and that since ... *social content, psychological effects and formal values in architecture all take shape in space* ... interpreting space includes ... *all the realities of a building.*

However, his own spatial interpretation of buildings throughout time does not differ much from the aesthetic-formalist approach. Bits and pieces of particular building interiors are picked out from successive stylistic periods and made to fit aesthetic related assumptions. The list of studies in which buildings and particularly their spatial layouts are used solely as illustrations for preconceived ideas and/or for categories established *a priori* is endless.

The two 'classic' approaches mentioned earlier exemplify the point. Although summing up to a bulky scope of references, buildings play a faint role in Wölfflin's study serving fundamentally — after a careful selection — as illustrative means for the aesthetic presumptions (both in positive and negative versions) concerning Renaissance and Baroque expressions and their contemporaneous societies. A careful selection also illustrates Frankl's dissection of buildings into previously settled categories — spatial, corporeal and visual forms — before he finally sets up the historical panorama in which they were produced. Wölfflin got trapped into his own conceptual cage and sought the links between the artist and the so-called character of the age from outside the architectural ground, by resorting to analogies with the representation of human bodies. A mere acknowledgement that a whole century of architectural production did not fit his categories was nearly all that Frankl had to say about nineteenth century architecture. Neither did Zevi's round-the-world and round-the-ages tour contribute much for the understanding of any particular society or its built forms despite the book's suggestive (and rather disappointing) subtitle *How to look at architecture.*

Regardless of it being applied to erudite or to vernacular architecture and irrespective of the researcher's departure point being drawn from outside architecture as in Wölfflin's or from buildings as in Frankl's and Zevi's studies,

[32] Zevi, op.cit.p.216.

the preconceived categories-plus-selection formula has not shed much light on the architectural production of any one particular society. Such approaches have not helped to show how buildings should be looked so that issues binding society and its built environment may be disclosed. Yet, they constitute most of what has been produced in terms of architectural investigation.

Rapoport[33] collected cases from cultures and geographic spots as far apart as the arctic regions of North America and the Tierra del Fuego, the Amazon region and Japan, to found his hypothesis that house form is primarily the consequence of a wide range of socio-cultural factors modified by climate conditions, methods of construction, availability of materials and technology. The insight, instructive and picturesque as it may be, offers little in terms of a theoretical contribution for the study of a particular culture. The superficial and generalising treatment and the very nature of his examples, mainly comprising second-hand data selected from a range of cross-disciplinary studies, invalidate its application both as methodological guidance and data reference. The ... *features of the house which seems most universal* ... offered by the author as analytical tools, besides not articulating a methodology may contribute to conceal important aspects of the object due to their pretence of universal validity.

It must be stated that these references and criticism are being made, not to expose long debated flaws but to assert that research conducted in the same vein would be reproducing similar biased results without nearing the importance that those studies merited by presenting, at their time, a novel approach to the theme.

Far from denying the relevance of, for instance, Rapoport's early emphasis on the importance of cultural aspects and of vernacular buildings for understanding architectural phenomena or on the validity of cross-cultural investigations for sorting out general issues from culture-specific ones, the argument here is that such all-inclusive approaches, may be useful for forwarding original ideas or generating a new theory but can prove damaging if their propositions are taken to be universal paradigms for investigating a

[33] Rapoport, A. House Form and Culture. 1969, (passim).

particular body of data. Instead of helping to answer specific questions, if applied uncritically, these notions may contribute to obscure important aspects and distort results.

David Stea[34] has examined a number of myths which pervasively creep into the study of vernacular architecture. Some, he claims, by being so widespread, have gained the status of truisms . The notions of *tradition* and the dichotomies between *sacred and profane*, *architecture with architects and architecture without architecture* , culturally *linear and non-linear* societies as well as *settlements and sex roles* are some of the myths he categorises as *seminal.* These are added by those — termed as *contextual* — concerned with social, political and economic environments.

Many a good-willed researcher has wasted comprehensive or representative samples by attempting to look at them through the narrow optics of approaches which had shown great originality at their outset but turned up to be unsatisfactory for the purposes of a particular piece of research. Whereas preset results supported by narrowly selected examples and generalisations drawn from chance samples show little respect for the reader, constricted inquiries on 'good' data show no less disrespect for one's own research material which is denied reliability as conveyers of information open to retrieval by systematic analysis.

The present study has been carried out under the strong belief that good data speaks for itself if only one is prepared to look at it in a systematic way and in a perspective as unbiased by preconceptions as the researcher's conditions (as part of the cultural and social world) can possibly permit. A robust method of enquiry helps a lot but only if the data is also robust enough to respond to investigation and provided that it is actually allowed to speak out.

This sense of respect for one's object and one's data seems to have found more fertile grounds among archeologists perhaps because they often have to rely on artefacts as the only clue to their investigation. Moreover, because such artefacts not seldom constitute all that has remained as evidence of a much larger man-made environment, the researcher is often spared the perils

[34] Stea, D. *The ten smudge pots of vernacular buildings: notes on explorations into architectural mythology* in Turan (ed.) Vernacular Architecture, Avebury, 1990, pp. 20-30.

and temptations of selective sampling. Among all artefactual studies, the investigation of spatial arrangements has also played a central part in archaeological research.

Although regretting that the theories and methods applied to archeological studies involving spatial analysis during the mid-seventies ... *represent an ill-assorted ragbag of miscellaneous and abused bits and pieces* ... David Clarke[35] states that the essence of the more recent versions of the anthropological spatial theory rests ... *on the proposition that archaeological remains are spatially patterned as the result of the patterned behaviour of the members of an extinct society, thus the spatial structure is potentially informative about the way the society organised itself.*

Relentless probing on the spatial structures of settlement remains, taken as a complete unpicked set or as a comprehensive section of a larger whole, have founded attempts to rescue socio-cultural reality in various archeological insights and feature largely in compilations such as *Environment and Planning B* [36], *Vernacular Architecture* [37], *The Social Archaeology of Houses*[38] and *Domestic Architecture and the Use of Space*[39].

Susan Kent introducing the latter laments that ... *archaeologists, as well as scholars from other disciplines, have tended to work in discipline isolation* but observes that, in the studies assembled, all authors ... *agree that the most important variables which influence the interaction between architecture and the use of space are some component of culture* ... although they differ as concerns the part of culture which directly influences it, and how this occurs.

This converging view on cultural agency over spatial function seems all the more striking by the fact that, in the referred study, the ten authors deal with

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[35] Clarke, D.L. *Spatial information in archaeology* in Spatial Archaeology, Academic Press, 1977, pp. 1-32.

[36] Apart from regular contributions, special issues on the analysis of building plans in history and prehistory concentrate different approaches and gives a measure of what has been achieved in the field. An example is the issue on Planning and Design, 1987, volume 14, pp.359-361.

[37] Turan (ed.) op.cit.

[38] Sanson (ed.) The Social Archaeology of Houses, Edinburgh University Press, 1990.

[39] Kent, Susan (ed). Domestic architecture and the use of space: an interdisciplinary cross-cultural study. - (New directions in archaeology), Cambridge University Press, Cambridge, 1990.

theoretical frameworks which include historical, economic, hermeneutic, sociopolitical and behaviour-environmental approaches, as well as one based on structuration theory. A few inspiring ideas have been forwarded. It seems worth mentioning, Rapoport's *activity systems* (a range of activities seen as expressions of lifestyles) and *systems of settings* (the various environments created for enabling such activities); Sanders's *culturally fixed factors* (specific cultural aspects) which interact with fixed (climate and topography) and flexible (i.e. materials, resources) factors to determine built form; and Kent's proposition that sociopolitical complexity is directly equated with a more segmented use of space and therefore with more architectural partitioning. Through her study Kent has tried to fill the theoretical gap concerning the need for a spatial theory of society, as expressed by Hillier and Hanson, by attempting ... *to sketch a sociopolitical theory of space which may be seen as also being a spatial theory of society.*

However, it can hardly be accepted that a theory of society may be considered as spatial when space is being viewed purely as a 'reflection' of socio-cultural factors. Kent's endeavour to demonstrate that ... *the use of space and architecture are specifically a reflection of the sociopolitical organisation of a society* ... or her proposition that ... *cultural material ... such as architecture, is a reflection of behaviour and ultimately of culture* ... place, again, space and society in separate domains and show that the problem concerning the links between abstract human relations and concrete built forms has not been resolved. By reducing the properties of space to a 'mirroring' effect, the active role that spatial arrangements play in generating encounter patterns and, therefore, in the ordering of human relations is being denied.

As Hillier & Hanson[40] have observed ... *because space has its own laws and its own logic, it can act as a system of constraints on the society. ... It can answer back. It does not obey some set of social determinants without imposing some of its own autonomous reality.* In this context, social structures are not seen ... *as an abstract global system anterior to and independent of social reality, but as a 'property of reality'* ... which can only exist if embodied in the very spatio-temporal reality and can only be reproduced ... *through the intellectual activity of man in retrieving descriptions.*

[40] Hillier &Hanson, 1984, op.cit.p.199.

The above assumptions translate, in short, these authors' notion of a *spatial society* proposed as an alternative for the subject versus object dilemma. Popper[41] has attempted to solve the *rationalism-empiricism* paradigm by advancing a third notion, that of *intelligibility* , through which the relations between the two former propositions can be understood. Those authors believe that by means of a revised version — in which society is spatialised — of structuralism, Popper's third world of *intelligibility* can be mapped.

Buildings, they claim, although obviously belonging to both the worlds of mental and physical states, also belong to the world of intelligibilia insofar as the key to understanding the reproduction of spatial arrangements lies in the understanding of the relations between morphology and knowability, a central problem in architectural theory. However, a basic difficulty for establishing the relations between form and intelligibility is, according to Hillier and Hanson, that of conceiving a descriptive account of the morphological features of the spatial context into which social processes and structures are built. The main problem seems, therefore, to lie on how to approach space in the first place.

The wish to overcome this problem has inspired the development of a range of techniques, referred here as morphological approaches, which seek to unveil aspects of the inner nature of the built form by looking at the spatial structures of buildings as laid out on their plans.

1.2.2. **On some morphological approaches**

Philip Steadman's book on architectural morphology reviews most of what had been developed in terms of morphological and configurational studies in the seventies.[42] The work is particularly concerned with the limitations imposed by geometry on building plans. It examines issues on representation and on the properties of symmetry involving rectangular plans and explores the possibilities of generating rectangular arrangements by dissection, addition, grid-tiling and colouring. Special attention is given to authors who have

[41] Popper, K.Objective Knowledge, referred by. Hillier,B. *Rationalism, empiricism, intelligibilia*, seminar presented at the UAS, Bartlett School, UCL, 1990.

[42] Steadman, JP. Architectural Morphology. Pion, 1983. p.248.

concerned themselves with exhausting the generative possibilities of rectangular arrangements, an issue Steadman pioneered as early as 1973, later forwarded by the works of Mitchell, Earl & Flemming, and Bloch who contributed towards a means of predicting a range of grating sizes for dissections with any number of rectangles without having to go through the actual process of generating and counting them. The catalogues developed by Combes[43] and Bloch are extensively examined as is the former's method for packing rectangles by plotting the ratios of *walls* to *partitions* . Some attention is also dedicated to issues not so much of a geometrical — i.e. size and shape — nature but involving topological properties as represented by graphs, and to the possibilities of allying geometrical and graphical procedures in the process of design.

Although primarily to suit the interests of practising designers and architectural students, as stated in the preface, Steadman suggests that systematic classifications such as the ones proposed in his book, specially those *involving a conceptual separation of dimensional, shape, and topological properties, could be applied in architectural history.*[44] He stresses the work of Dickens on a sample of seventy-four small Cambridgeshire houses, that of Arbon on thirty-eight plans of houses in Monmouthshire, Wales, and that of Hanson and Hillier on twenty-one seventeenth-century houses in the area of Banbury, Oxfordshire, to be referred later on, as examples of morphological approaches applied to historical studies.

Dickens[45] undertakes a pilot study comparing ... *the range of plan-forms that could theoretically exist and the probabilities of different forms occurring by purely random process ...* to the range of forms actually observed ... *with a view to discovering which plans are common to a number of historical time-periods, and which are more closely associated with particular periods.* [46] He has found that the plans geometrically more probable are often the ones least found in real practice and forwards *compactness* and *economy* as hypothetical reasons for the theoretically feasible alternatives having been

[43] Combes, L. *Packing rectangles into rectangular arrangements* in Environment and Planning B, 3, 1976, pp.3-32.

[44] Steadman, op.cit.p.209

[45] Dickens, P. *An analysis of historical house-plans: a study at the structural level (micro)* in Spatial Archaeology Academic Press. 1977. pp.33-45.

[46] Ibidem, p.33.

restricted, although stressing that this type of study requires a larger sample in order that reliable statistical tests could be carried out.

The study by Philip Arbon is reported in Steadman's[47] comments on Combes's diagram of rectangular dissections. House plans whose outer perimeter conformed to a single rectangle were selected from The National Building Agency's study of *Generic Plans* and the number of their walls and partitions measured according to the method developed by Combes, referred above. The development of building techniques, increasing differentiation of functions within households and a growing need for privacy were some of the hypothesis suggested by the findings although, again, the scope of the sample was considered insufficient for conclusive results.

Frank Brown[48] (in collaboration with Steadman) has also experimented with rectangular dissection techniques applied to architectural history by analysing three types of domestic buildings: the nineteenth-century terrace dwelling of the byelaw housing model; the municipal working-class cottage and the private semi-detached house. Based on the application of a program developed by Flemming for generating rectangular dissections and on empirical observations, the authors' aim was to understand ... *the relationship between the different plan configurations and the forces — social, technical, and functional — that shaped them.*

The authors demonstrated that ... *a very full picture of the constraints that applied in house design in different historical circumstances* ... can be outlined through the application of their chosen morphological approach and that by ... *systematically generating plans from the constraints that are available, one can make informed guesses as to those that are missing.* Although warning that the methodology applied ... *is not a magic wand with which to conjure up ideology* the authors stress its value as a reliable tool for archeological and architectural studies and maintain that in the examination of the possible against the extant lies the key to interpreting social and cultural phenomena.

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[47] Steadman, J.P. *A note on Combes's classification for rectangular dissections* in Environment and Planning B. 3, 1976, pp.33-36.

[48] Brown, F. *The analysis and interpretation of small house plans: some contemporary examples* in Environment and Planning B. 14, 1987, pp.407-438.

Brown[49] has published a revised version of the work referred above focusing on the working-class cottage and the private semi-detached house. In it, he stresses the power that a few variables may hold in the shaping of a building plan and notes the social messages at work beneath the apparent utilitarian versus social polarity, in both instances. He contends, for instance, that the political and ideological underpinnings for hindering social turmoil and encouraging the reproduction of family life that lie behind the rigorous guidelines for bigger, lighter, and airier rooms in government official manuals, translate, in working-class state housing, ... *in a far more subtle and far-reaching way than in its private-sector counterpart.* However satisfactory his techniques have proven for meeting the designed aims, Brown reminds the reader that the applied method is restricted to rectangular plans with few component spaces. *Beyond four rooms, the number of possibilities multiplies dramatically, ...* and astronomical figures can be easily reached. *Plans of ten rooms, ... can be arranged in more than half-a-million different ways.*

Some difficulties concerning the application of rectangular dissections emerge at once. For example, the sole concentration on rectangular arrangements and specially on rectangular perimeters and the limited number of rectangles involved are restrictions not always easy to overcome. On the other hand, many current morphological approaches, specially, it seems, those which deal with non-rectangular shapes involve very sophisticated mathematical models which are not only beyond the capability of most architectural researchers but also far beyond the pains fellow scholars would be willing to take for the purpose of discussing and verifying those findings. Besides, setting the actual against the feasible implies exhausting all theoretically viable arrangements before the data can be fully examined. Even if a catalogue of all possibilities is available such methods are highly uneconomical and virtually unworkable when large samples are to be investigated. The fact that insights on vernacular architecture may involve not only numerous cases but very differentiated plans and that one can hardly predict what those plans are going to be like before having actually collected the data, renders feasible-versus-actual methods far too limiting. This is perhaps the reason why morphological approaches, although being around for quite some time, still constitute a fraction of architectural studies and even these have often relied on techniques

[49] Brown, F. *Analysing small building plans* in Sanson (ed.) The Social Archaeology of Houses. Edinburgh University Press, 1990. 259-276.

developed for specific purposes by each researcher.

Architect's approaches to architecture such as Sir Leslie Martin's [50] exploration of the theoretical possibilities for fitting a given programme into different forms and Colin Rowe's[51] comparative study of buildings designed by Palladio and Le Corbusier are examples of analytical methods developed *ad hoc* , mainly as design aids, and concerned fundamentally with speculating on the geometrical ordering of forms.

Glassie[52] and Douglas Bailey[53] , among others, have developed their own analytical tools for investigating processes of change. The former, constructed an artefactual 'grammar' based on structural analysis, retrieved from observations of a sample of houses in two counties of Middle Virginia. The set of identified rules was thought to reveal the folk designer's ability to compose (from Chomsky's notion of 'competence') and to relate the composition to its 'context', in synchronic terms, and to allow for a diachronic interpretation to follow. Bailey traced a hundred and thirteen house remains distributed in twelve levels of a Chalcolithic tell settlement in Bulgaria and determined whether one house had survived from one horizon to the next wherever 75% of the walls of a preceding house could be identified in a succeeding level.

Although perhaps not of a permanent and universal application the above referred approaches, as certainly many other efforts towards a systematic investigation of the built form, seem to have targeted its aims and some, like Glassie's, have generated further studies and a considerable amount of discussion.

Steadman has noted about the approaches reviewed in his book that, ... *all these proposals for a morphological history of buildings and building types are made in the frank recognition that such a history would be a partial one, focussing on geometrical, material, and technological constraints, on*

[50] Martin, op.cit.

[51] Rowe, C. *The mathematics of the ideal villa* in The Mathematics of the Ideal Villa and other essays, MIT Press, 1982, pp.1-28.

[52] Glassie, H. Folk Housing in Middle Virginia: A Structural Analysis of Historic Artifacts, University of Tennessee Press, Knoxville, 1975.

[53] Bailey, D. *The living house: signifying continuity* in Sanson,R.(ed.), The Social Archaeology of Houses, Edimburgh University Press, 1990, pp. 19-48.

functional performances, ... , on the relation of spatial to social organisation ... The hope is rather that such a programme may to some extent counterbalance or complement the exclusive concentration by some architectural historians and critics on personalities, styles, 'influences' in the narrowest sense, and especially today on questions of semiotics and iconology. And, it could perhaps be added, in the hope that architect researchers may breathe throughout the thorny maze of borrowed theories and seriously investigate architecture by actually looking at architecture.

1.2.3. **On space syntax**

An attempt to summarise the generative theoretical process of the space syntax analytical method lies beyond the scope of this study. Nor would a detailed description of its techniques represent any contribution to a subject which has been extensively exposed in *The Social Logic of Space* [54] and in a vast number of publications by the creators and collaborators of this methodology, not to mention Steadman's crystal clear explanation of its essence, in the work referred above[55]. However, a few words on some arguments posed by its critics might help to consolidate the appropriateness of the application of space syntax techniques for tackling the problems in this research.

R. Lawrence,[56] has identified and described seven recurrent interpretations of vernacular architecture — aesthetic/formalist, typological, evolutionary , social and geographical diffusionism , physical and cultural — in a survey of studies published in English or French. The author includes space syntax in the 'typological' category and criticises this type of approach on grounds that ... *those studies which only measure and record the design, construction and furnishing of specific dwellings, ... are not informative about the meaning of these dwellings, why they were built, the lifestyle of the inhabitants and possible changes to these and other variables during the course of time* ...

Lawrence's and similar surveys although valuable for helping researchers to trace up references in economical way, tend to group authors into generalised

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[54] Hillier & Hanson, 1984, op.cit. (passim).

[55] Steadman, op.cit. 1983, pp.215-239.

[56] Lawrence, Roderick J.. *Learning from colonial houses and lifestyles* in Turan (ed.), Vernacular Architecture, Avebury, 1990, pp.219-257.

categories that can be quite inappropriate. The inclusion of, for instance, Glassie's *Folk Housing in Middle Virginia*[57] in such a short-reaching perspective comes as a surprise, to say the least, since the meaning of those houses and why they were built in one or another way to meet the changing lifestyles of inhabitants was precisely what Glassie arrived at, by interpreting his exhaustive measurements.

Elsewhere Lawrence[58] has criticised Hillier&Hanson's approach more directly as deterministic, arguing that ... *the mere act of transforming the two-dimensional representation of a building from a traditional scale drawing to a graph does not yield any information about psychological, societal, cultural, or temporal issues* and that ... *to limit the analysis of domestic architecture to a study of its configuration would be quite misleading, because the meaning and use of domestic space is not solely dependent on its form.*

The shallowness of perspective attributed to space syntax in the above criticism suggests that the author has hardly realised the extent to which its techniques can be expanded to accommodate all sorts of variables as has often been done. This impression is strengthened by the elementary questions Lawrence poses as objections to the approach: *What if internal changes and additions were subsequently made to these houses? How are the different rooms classified and used?* The answers seem so commonsensical that one wonders why they were asked in the first place. It is obvious that any of the analytical procedures can and must be reworked to account for changes whenever additions, conversions or simply a new access perspective is being investigated. This flexibility for continuous (and fairly economical) reworking is, in fact, one of the blatant excellences of the method. Another is the possibility open for classifying spaces according to use or to a virtually unlimited range of variables. This crucial aspect often seems to be missed altogether by many critic viewers. By enabling the labelling of functions to be inserted into the analytical procedures, space syntax allows semantics and structure to be unified in the same framework, counteracting the idea that a 'semantic structure' is not present in architecture. Space syntax shows it not only to be there but offers the means to retrieve it in a very straightforward way.

[57] Glassie, H.op.cit.

[58] Lawrence, Roderick J.. *Public collective and private space* in Kent (ed.), op.cit.pp.73-91.

In his introduction to a series of archaeological studies on domestic space Ross Sanson [59], has most typological approaches (space syntax as well as Glassie's artefactual grammar) lined along with ... *the formalist interpretation as the methodological foundation for describing and measuring buildings.* ... , He criticises empirical measurement for being subjective although stating that ... *the only true social theory that could come out of architectural studies would necessarily be closely related to the most important characteristic the built environment possesses: its capacity to order space and organise human contact* ... and that such ... *a theory could only be developed from a method of describing and measuring the space of buildings* .

He also concedes that by ... *eschewing formal analysis ... much detail is surely lost* ... , but points out some difficulties inherent to spatial analysis as, for instance, that of identifying ... *a room or closed space within a building* ... (bearing open-plan layouts in mind) and that of compartmentalising outdoor spaces. He accuses Hillier & Hanson's approach of not being specific about ... *what is meant by control of access* ... and expresses surprise that this approach takes ... *its cue from work done on twentieth-century society, which does not think in terms of power over the household,* ... (but for parental control of children's movement). Presumed flaws on the notion of control are sought to be illustrated by his arguing that although in Scottish tower-houses the development is one of increasing control and exploitation, the adoption of more stairways would deem the spatial configuration less restricted, less controlled.

The insertion of space syntax into the framework of formalist interpretations although strongly arguable is beyond the purposes of this discussion and shall not be dealt with. The same applies to the allegation of its being subjective. The first two objections, on the other hand, can be promptly dismissed. Space syntax offers several alternatives for sorting out indoor and outdoor spaces, walled or otherwise, all seeming to work equally well provided that they are consistently applied. This is being done all the time as shall be seen in the next chapters. As for the issue of control it looks as if some concepts (i.e. that of class control) are so deeply rooted into academic thought that impedes the acknowledgement of the simple fact that a wall, a closed door or even a mobile

[59] Sanson, R. *Introduction*, in Sanson, R. (ed.) op.cit. pp.1-18.

element can, and usually is, a means of control not only by parents over children but indeed by anybody trying to prevent others from taking part in whatever goes on beyond it. As for the inclusion of backstairs in tower-houses, this could only be translated as necessarily configuring a *less controlling* pattern by a naive space syntax user, specially after functions have been added and the routes defined by such thoroughfares identified. Any fairly experienced space syntax researcher would be well aware that transition spaces ... *draw rooms at a distance closer but only by disengaging those near at hand*. They, therefore, facilitate *purposeful or necessary communication* reducing, at the same time, all *incidental communication*, as Evans[60] has observed, a fact that might certainly have suited the need for *increasing control* in Sanson's Scottish houses.

Frank Brown[61] argues that whereas in other morphological approaches the information lost in the process of representation is the price paid for the necessary simplification and can be ransomed at a later stage, in space syntax ... *this stripping away of information is more than a matter of convenience: it is seen as the necessary and privileged route to social relations* ... He argues that the interacting of shape, size and topology is overlooked by the focus on topological properties and warns against the dangers of treating ... *the relationship between social structure and spatial structure as intrinsically law-like.* Brown also claims that ... *the access pattern is interpreted as the underlying generative mechanism of building form (hence the term 'genotype')* ... *a fact that gives the graph unique explanatory status* and leads to a direct equation between relational structure and social structure.

It should be stressed, once more, that space syntax does not impede other information being brought into the analysis. Nor does it forbid other theoretical approaches — i.e. historical — to interact, complement or verify its results. In recent times, numerical and graphical syntactic results have been plotted against a huge range of other parameters which include not only historical and economical ones but physical data such as dimensions, average temperature, lighting, etc. as well as subjective ones like the occupiers' assessments on

[60] Evans, R. *Figures, Doors and Passages* in Architectural Design, April 1978, pp.267-277

[61] Brown, F. *Comment on Chapman: some cautionary notes on the application of spatial measures to prehistoric settlements* in Sanson (ed), The social archaelogy of houses, Edinburgh University Press, 1990, p.95.

spatial and comfort issues in buildings. Total flexibility is allowed the researcher who decides what alternative perspective may strengthen his search, which variables to include and to what extent these should be explored. It remains arguable whether overloading a study with a plethora of approaches and a massive range of variables makes it much better. It might not.

Brown himself seems to have got some satisfactory results in his analysis of semi-detached houses by sticking purely to rectangular arrangements and historical data. He has also taken the pains of verifying, in his handling of the 'star pattern' in a narrow-frontage house, how builders can devise clever strategies to counteract the limits of geometry and still achieve the set of desired spatial relations, a fact that suggests that shape and dimensions may not be as restrictive as some have claimed.

As for the dangers of reifying access relations into social relations there are some points which must be argued. It is not true that the access pattern in space syntax is posed as ... *the underlying generative mechanism of building form.* Spatio-temporal reality is, in fact, the generative mechanism of the built form which the access pattern translates. This has been sufficiently clarified in Hillier&Hanson concept termed as *inverted genotype*[62]. Reality generates the structure which translates the ideas in the minds of men into a construct that enables (or hinders) human activity. The rules that shapen that construct are what can be recaptured by certain analytical procedures. This helps to reveal aspects obscured by conventional analysis as well as by most morphological approaches that deal mainly with the ordering of geometrical entities since this ordering of spaces may be very restrictive or very loose in reality without necessarily affecting the degree in which the complex is structured for social purposes.

The dangers of syntactic misinterpretation are no greater than the various traps awaiting researchers on their quest for knowledge, whatever their chosen

[62] In organisms the genotype is realised in each individual through a *description centre* which is the embodiment of genetic instructions. There is no such description centre in society. For this Hillier & Hanson substitutes a *local description retrieval mechanism* which allows the retrieval of a description from reality. *The structured information on which the system runs is not carried in the description mechanism but in reality itself* ... Therefore, *a discrete system runs on an inverted genotype, which exists as ... informational structure within an environment of human spatio-temporal reality.* Hillier & Hanson, 1984 op.cit.pp.43-45.

analytical framework and techniques. One can only try to avoid them by careful handling of the data — provided it is trustworthy — and by continuously checking it against the available body of references. This seems to be the only path for sorting out problems that will inevitably be met on the journey. The path might be tougher, as Brown[63] points out when only very meagre information on the object can help to ... *fill lacunae, test hypotheses and check conclusions.* Fortunately here, this is not always the case.

Less inspiring is Johnson's[64] criticism. He starts by bunching Hillier & Hanson together with Rapoport on grounds of cross-cultural approaches, formal compatibility and shared assumptions on the ... *strong relationship between the spatial form and the ways in which encounters are generated and controlled ...* He later expresses his difficulty in seeing ... *how architectural change can be explained within this framework ...* adding, in a most cryptic fashion, that this explanation would hold no problem ... *if architecture simply changed with predetermining social change, but as Hillier & Hanson themselves point out, " through its ordering of space the man-made physical world is already a social behaviour" .*

One can not help debating the authors' reasons for relating the two methods as if a cross-cultural perspective and the notions behind the stated proposition were the preserve of a few authors alone. Moreover, although Hillier and Hanson resort to cross-cultural comparisons for presenting diverse ways in which societies are realised through spatial structuring, space syntax offers a range of analytical tools powerful enough to reveal important social aspects of the built environment regardless of these being universal or culturally-specific and whether the object is approached through a synchronic or a diachronic perspectives. By considering both methods as formally compatible, Johnson also overlooks the crucial difference between an approach that departs from abstract notions and proceeds to identify their unfolding in the material world and another which has been laboriously retrieved from the very structures that constitute the material preconditions for the spatio-temporal realisation of society. However strongly its author stresses that the built environment affects,

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[63] Brown in Sanson, 1990, op.cit.p.93.

[64] Johnson, Matthew. Housing Culture: Traditional architecture in an English landscape, UCL Press, London, 1993, pp.29-30.

guides and constrains behaviour,[65] Rapoport's analytical framework does not appear to escape the subject-object polarity concerning the approach of the built environment, which Hillier and Hanson have toiled to overcome. One of the objections to space syntax posed by Johnson, seems beyond refutation. Does he mean that by being also a social behaviour the built form cannot express change in social behaviour? Can the built form not express itself then? One wonders.

It is not believed that reviewing a lot more criticism on space syntax would add much in support of this analytical framework, even because the task could end up by filling volumes. This fact is already a good measure of its importance. The reasons for having chosen space syntax as both toolbox and theoretical foundation for the present study could, however, be summarised in the strong conviction that it actually offers the means to retrieve socio-cultural information from buildings regardless of their shape, size, complexity or stylistic affinities, without the need to resort to borrowed analogies or sophisticated mathematical calculations and without having to exhaust all feasible spatial possibilities, a deed, it seems, not achieved by many methodological approaches.

Ross Sanson[66] states that the ... *theories producing the best social archaeologies of houses seem to come from outside architectural studies* . So do the great majority of those producing any sort of domestic architectural studies themselves, whether good or otherwise. Most have, regrettably sat among the otherwise.

In the preface to *The Social Logic of Space* Hillier and Hanson[67] state that their aim was ... *to reverse the assumption that knowledge must first be created in the academic disciplines before being used in the applied ones, by using architecture as a basis for building a new theory — and a new approach to theory — of the society-space relation.* It is trusted that although not *having* to look for his clues within the limits of his own discipline the architect researcher should be *allowed* to. Space syntax is, of course, one among many alternatives. It is as good as any, better than most and unlike the majority, it is architect-friendly. This is already a good reason for choosing it.

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[65] Rapoport, Amos. *Systems of activity and systems of settings.* in Kent (ed.), op.cit.p.11.
[66] Sanson, Ross, op.cit.p.6.
[67] Hillier and Hanson, 1984, op.cit.p.x

1.2.4. **On domestic space**

... there has been nothing on housing beyond an article or two in academic journals and a few pages in more general works. This statement, by Dr.Stanley Chapman in 1971, is quoted by Simpson and Lloyd[68] in 1977 to illustrate the fact that domestic buildings, and particularly those of the middle class, did not deserve enough academic attention. Until not long ago nearly every study on housing started with some sort of remark or other on the meagre scope of serious research concerning this most essential of building types.

This situation appears to be undergoing a radical reversal in recent times, at least as concerns western developed countries, where the former *Cinderella* of architectural studies has been the object of an ever growing academic output which includes a wide range of interdisciplinary approaches. Some of the works referred in previous paragraphs, and these constitute a fraction of what has come out lately, illustrate the point and the fact that interest surrounding domestic spatial structures has increasingly gained the attention previously focused on built shells.

A review of the literature on domestic space structures shall not be attempted in the present study. However, something must be said about a few notions which have helped to illuminate the investigation that follows. These notions underpin, in more or less explicit terms, studies on the spatial configuration of dwelling buildings or have emerged as a result of empirical observations.

The distinction between transition-space-centred and function-space-centred domestic structures is a theme underlying cultural issues in various studies. By the former concept Hillier et.al.[69] mean a spatial system in which the most integrated space (or spaces) is transitional, that is, the access to all spaces in the complex is easier from a certain segment (or segments) in the circulation network. In function-space-centred complexes, a room (or rooms) in which activities are developed constitutes the most accessible space in relation to the whole complex.

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[68] Simpson, M.A.& Lloyd, T.H. *Introduction* in Simpson&Lloyd (ed.), Middle Class Housing in Britain, David&Charles, Archon Books, 1977, p.7.

[69] Hillier, Hanson and Grahan, op.cit.pp.382-385.

Findings have associated the models above with the spatial logic in homes of distinct social class, with diverse patterns of behaviour across nations and time, with socioeconomic and political change, with gender differentiation within the household.

Elsewhere, Hanson and Hillier[70] have opposed *insulation* (the degree of discontinuity between rooms) and *sequencing* (the way in which spaces are connected together into chains) and have shown how each variable equates with the homes of distinct social classes. The former associates with spatial systems whose main function cells are knitted together by transition spaces that usually insulate rooms from one another. This pattern was found to prevail among traditional working class homes in London whereas sequencing, that translates spatial networks in which chief activities connect or flows into one another, dominated in similar buildings that had been reformed by occupants of a 'new' middle class — academics, journalists, actors, etc. — ... *people who are engaged in capturing, externalising and representing society to itself.*[71]

Robin Evans[72] distinguishes the *corridor plan* and the *matrix of connected rooms* as spatial materialisations of two types of social behaviour: one guided by puritan principles and habitual privacy, another by body contact and habitual gregariousness. The two models are not only found to relate to distinct societies but also to equate with changes in patterns of behaviour within a same society. He associates, for instance, the adoption of the transition-centred model, the corridor plan, in Britain, with the seventeenth century puritan ideal and, again, with the moralism of the Victorian period.

Glassie[73] has attempted to demonstrate how changes in the social, economic, political and religious conditions of life in eighteenth century Middle Virginia triggered an increased need for privacy, individualism and control over nature and led to the adoption of a complex system of transition spaces so that in ... *the new house the most public room was only as accessible as the most*

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[70] Hanson J. & Hillier, B. *Domestic Space Organisation. Two Contemporary Space-codes Compared* in Architecture and Behaviour 2, 1982, pp.21-22.

[71] Idem, p.24.

[72] Evans R. op.cit.p.267-274

[73] Glassie H.op.cit.p.190.

private room was in earlier buildings.[74]

The idea of a transition-centred spatial network as opposed to a function-centred system was also seen to correlate with different dwellings in Normandy[75] which may centre around the *salle commune*, a space expected to be essentially occupied by women, or around a transition space. This was found to be suggestive of gender distinctions, the former associating with a female, the latter with a male view of the household.

This leads to another issue underlying the study of domestic space organisation: that of key domestic functions, how they relate to the homes of distinct groups, how some basic activities associate with certain spaces and their occupants, and the ways in which the spaces designed to accommodate those functions interrelate with one another and with the spatial network.

Robert Kerr[76], Herman Muthesius[77], Dennis Chapman[78] and Helen Long[79] are examples of authors who have related function and social class in British homes in studies produced within some forty or fifty years from one another.

Kerr, Muthesius and Long relied on the availability and use assigned to certain rooms to distinguish dwellings in socioeconomic terms and Chapman focused on some key domestic functions to assess differentiation in patterns of behaviour and the interaction of family and social status based ... *on a functional analysis of the family's social life as expressed in the material and cultural equipment of the main living-room.*[80]

Essential functions and the way they relate to one another and to all other spaces in a given domestic complex lie behind the notion of *genotype*, a key issue in the present investigation: the idea is conceived by Hillier and

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[74] Idem, p. 120-121.

[75] Hillier B.,Hanson J. Grahan H., op.cit.p.383.

[76] Kerr R. The Gentleman's House, John Murray, 1864.

[77] Muthesius H. The English House, 1905.

[78] Chapman, D. The Home and Social Status, 1955, pp.24.

[79] Long H. The Edwardian House. The Middle-Class Home in Britain 1880-1914, Manchester University Press, 1993.

[80] Chapman, 1955, op.cit.,pp.24.

Hanson[81] as ... *abstract rules underlying spatial forms.*[82] The way in which these abstract rules can be retrieved from the spatial structure of a house may be summarised in the following explanation of housing genotype given elsewhere by Julienne Hanson.[83]

... different functions or activities are assigned to spaces which integrate the complex to differing degrees. Functions thus acquire a spatial expression which can be assigned a numerical value. If these numerical differences in function are in a consistent order across a sample ... we can say that a cultural pattern exists ... We call this particular type of numerical consistency in spatial patterning a housing 'genotype.

The ways in which transition-centred and function-centred complexes relate to general and syntactic aspects of domestic spatial structuring and the identification of genotypical patterns of integration among key functions, and how they relate to the overall system of spaces, may be viewed as conceptual foundations for the series of observations that will attempt to decipher — in social and temporal terms.— the cultural soul of homes in Britain and Recife.

1.3. **The data**

What seemed initially as an almost unsolvable difficulty regarding the collection of the data was the fact that whereas one knew within fairly good chances of accuracy what houses had been built before and after the arrival of British residents in Recife, where these could be found, and what sort of people might have occupied them, there were no clues about the homes the newly-arrived had left behind except that these were not likely to be dwellings associated with either extremes of the social scale, as records refer mainly to traders, engineers, skilled workers, clerical staff and clergymen.[84] This meant that the sample should be representative of virtually the universe of late nineteenth and early twentieth century British homes of middling economic

[81] Hillier& Hanson, 1984, op.cit.(passim).

[82] Idem, p.12.

[83] Hanson J. *Tradition and Experimentation in Housing and Neighbourhood Design* in Proceedings of Prospects on Housing Policy and Technology Development for the 21st Century, Korea Exhibition Center, Seoul, 1992.

[84] Although references about large groups of workers hired in Britain for building railways can be found, it appears that these were lodged on site and tended to return to their homeland once the work was finished.

status.

As has already been stated, the temptation of constructing a sample out of carefully selected cases was to be avoided at any cost as was the easy artifice of examining a handful of cases come across by more or less chancy circumstances. This attitude ruled out most architectural studies and second-hand data in general. On the other hand, the research's deadlines and resources prevented surveys on government offices being carried out, since these may prove very time-consuming when one cannot afford to restrict one's data to a certain region, the same applying to the examination of surviving examples *in loco* which besides being impractical is hampered by alterations and conversions in the original building. Periodicals were thus considered the most satisfactory source for collecting a large sample of plans that reflected, as closely as possible, the housing production of the period.

1.3.1. The British sample

The five hundred plans that make up the British sample have been collected from the first two specialised periodicals published in Britain — *The Builder* and *The Building News* . The fact that these journals published plans by builders, students and amateur designers as well as by qualified architects added to their potentiality for providing a panorama of the domestic architecture in Britain. The examples were collected without any specific criterion — other than time of construction (or design), display of room labels and legibility — by leafing through the pages of the journals, and photocopying whatever came into view in terms of complete plans of one-family dwellings.

Although it was known from the outset that the real target was the centre of the socioeconomic pyramid it was felt that social boundaries should also be defined by observation and no attempt to restrict collection of available plans was made but for a few really grand mansions and houses with less than two day living cell. It should also be noticed that although the dates here considered are those of publication, during the search for additional information about the plans in the data-gathering process, it was found there nearly always to be some sort of remark about either the time of design or that of construction for the great majority of published drawings. Apart from the sum up to a maximum of three hundred cases. Since choosing this or that plan was out of the question, it was decided that research would be concentrated in either one journal at a time. *The Building News* was chosen for the period between 1911 and 1925 due to its frequent competitions[85] that regularly brought to light the work of builders, students and amateur architects. With the disappearance of *The Building News* in 1926, when it was amalgamated with *The Architect*, plan-hunting was again resumed in the pages of *The Builder* until 1930. The total number of complete plans amounted to a little over five hundred examples. The plans exceeding this figure were randomly discharged and saved as spares in case undetected replicas or incomplete plans were to be identified later, a precaution that eventually proved worth taking. More than one plan in a same housing development were often collected as long as they presented different layouts. Exact replicas were disregarded.

The analysis of the full sample aimed at revealing broad tendencies in terms of spatial distribution and spatial configuration, across social class and time. Although analytical techniques were applied to each plan, no insight on individual examples was attempted and results were treated as pertaining to groups or clusters rather than to specific cases. For this reason and because the display of five hundred plans (some up to six storeys high) on paper would take a massive volume and consume precious time, the plans will not be presented in printed form. However, photocopied drawings were scanned and saved in the floppy disks annexed to the back cover of this volume (**disks 2** through **7**) so that they can be checked, if necessary, and may serve as a data bank for future studies.

The idea behind a large body of data, besides being an attempt to escape the bias of selection, was to construct a sample robust enough to stand breaking-up's into sub-samples and still comprise fairly large clusters so that mainstream

[85] The editor, in the first issue of the amalgamated new journal *The Architect and Building News* of 19 March, 1926 refers to these competitions: *The Building News first appeared in 1854 ... One of its most notable features was for many years* ***The Building News Designing Club,*** *Founded when architectural education, save that to be learnt by rule of thumb in offices, hardly existed and when the Architectural Association School held night classes only in which architects in practice taught and lectured,* ***The Building News Designing Club*** *gave the younger men both incentive to design and the experience only to be gained by competition and criticism,...*

spatial patterns could be backed by reasonably numerous cases and contrast conspicuously in number with those that were not, thus, allowing for the identification of types.

The global analysis dealt with basic — general and syntactic — features, in terms of interior spaces only. These were also examined in the light of some textual references. Socioeconomic categories resulted from the analysis of general features — i.e availability and labelling of certain cells — thus enabling findings to be examined across social status. Prevailing patterns of spatial configuration and of integration hierarchy among key functions — genotypical inequalities — were identified and led to further categories being established. 'Strong' genotypes associated with middling social enclaves constituted the main criteria for the identification of a sub-sample reduced enough to allow individual scrutiny.

A representative subsample of twenty-five cases was examined on a plan-by-plan basis. Each complex was syntactically reworked to include exterior spaces and allow further investigation. Results from the global and the individual analysis were later compared to those drawn from the investigation of houses in Recife.

1.3.2. **The Brazilian sample**

Whereas the complete British sample is expected to mirror a universe embodying the whole housing production of a country — extreme upper and lower segments excepted — over three quarters of a century, the scope of the universe which is being investigated in Recife is limited to middling and upper middle-class dwellings, whose main typological categories (albeit restricted to exteriors only) have been identified and which are located in areas already comprehensively surveyed.

Thus due to the great disparity between the scopes of potential universes that the two sets of data must represent and because many clues had already been disclosed by empirical investigation in houses of Recife, no preliminary global analysis was attempted for the Brazilian sample.

Enquiries on government offices in Recife revealed that an extensive collection of house plans which had belonged to the extinct DSE (Departamento de Saneamento do Estado), formerly in charge of the water supply and sewage systems was still kept — although in very poor conditions and not open to public research — at the Divisão de Esgotos of the Cia.de Aguas e Esgotos de Pe. (COMPESA-Cabanga). The houses identified in the 1985-8 survey had been classified according to their exterior morphological types and recorded, along with respective addresses. Therefore a balanced number of examples belonging to each main category could be randomly retrieved by going through the records of the surveyed areas that had been favoured by British residents, without having to actually reevaluate the town, a task certainly beyond the time available for the field work. A list of around two hundred addresses was issued to the civil servant in charge of the DSE archive who kindly identified (and authorised the reproduction of) over half of the listed plans. These, although heavily concentrated within the morphological categories which dominated the housing scene during the 20's and 30's, also included a reasonably well distributed number of cases affiliated to the colonial morphological repertoire as well as to those which prevailed in the last and first decades around the turning of the century. By casting out incomplete and poorly legible plans and by randomly excluding a number of exceeding ones so that a balance between colonial and post-colonial cases was achieved, the data was reduced to forty-six cases, twenty-one of colonial, twenty-five of eclectic houses . A set of analytical procedures similar to those applied to the British sub-sample were applied to these cases. Results from the investigation of colonial and post-colonial spatial structures were compared and, again, compared to those from the analysis of British plans .

It should be noted that the awareness of the limitations of the data as representative of their universes has been a major concern. The set of British house plans are the outcome of some editors' choices and the Brazilian data is a subset of a universe already greatly dilapidated by the laws of urban reconstruction. However, the fact that no deliberate action to privilege any one housing type was taken may, as is hoped, have contributed for a less biased sampling. It is also hoped that the constant dialogue between spatial analysis and textual reference, whenever available, has helped to overcome some of those limitations.

1.4. Analytical techniques

The diversity of the plans compelled a number of decisions about how space syntax analytical techniques should be applied. The basic assumptions were:

1. Every function space (in which some activity is performed) was considered as one cell regardless of its shape. Therefore, inglenooks, bay windows, recesses, alcoves and any such appendages to a room were disregarded based on the idea that whatever went on in those subsidiary lumps of space would be compatible with the use the cell was designed to accommodate.

2. All transition spaces were broken up convexly, according to bends, narrowings (or widenings) and doorways, as found in the plans. Since the key issue under investigation is the way in which spaces articulate, it was felt that a bedroom connecting to a staircase landing, for instance, could not have the same spatial relationship to the staircase (or to any other space) as another room located at the end of the winding corridor off that landing. Conversely, since dimensions in measurement units are not taken into account, a straight corridor or passage of unvarying width was considered as one space regardless of its length.

3. Storage cells and what seemed to be like walk-in cupboards counted as one space.

4. Outbuildings and semi-enclosed appendages such as loggias, terraces, open porches, outdoor staircases and conservatories were disregarded for the syntactic analysis both of the network of interior spaces and of this complex linked to one space representing the exterior. The network of interior spaces, herein also referred to as *minimal living complex*, is defined as embodying all continuous interior spaces linked by way of indoor connections only.

Some difficulties concerning the definition of interior spaces emerged when plans were being transformed into access graphs since many drawings displayed doorways but not the actual doors, making it hard to decide whether a back lobby leading to the garden and connecting, say, a kitchen and its larder could be considered as an indoor space. Elevations, when available, helped to tackle many such problems. Otherwise, porches and lobbies were considered as indoor spaces whenever it appeared that its exterior doorway contained or could contain (by its width and representation) a casement. Appendages flanked by columns, pillars or archways were considered as outdoor spaces. Conservatories and winter gardens presented special difficulties. Some were enclosed by what seemed clearly as detachable glass panels whereas others looked more like ancillary rooms. Since these differences difficult a consistent treatment being applied to the sample and because these spaces are primarily of a visual rather than a functional or transitional nature they were generally considered as semi-enclosed — like terraces and loggias — and disregarded. Upper floors semi-enclosed spaces, such as balconies and belvederes, on the other hand, were considered as one space.

5. Steps linking different levels were only counted as one separate space when exceeding four steps. By the same token, staircases broken into two or more flights only counted as multiple spaces (each flight as one space) when other spaces were linked to intermediate landings. Otherwise they counted as one space regardless of their shape.

6. For the evaluation of how the network of interior spaces relates to the exterior (*minimal living plus carrier*), a single space representing the exterior was linked to all spaces of the minimal living complex that are permeable from the outside. Completely enclosed open-air spaces, such as lighting areas in terraced houses were not considered.

7. For assessing the spatial configuration of each complex in relation to the public space (*minimal living plus public space*), one space representing the street and as many intervening spaces between that and the front door were added to the minimal living complex. All other links to the exterior were disregarded. A front garden, regardless of its dimensions was considered as one space as were open porches, loggias, terraces, exterior flight of steps, etc. In cases where the front door opens into a side garden, being therefore more withdrawn from the street than other areas of the building, the side garden was considered as one space, and the front part of the garden between the

foremost wall of the building and the street as another.

Access graphs were drawn for each house according to the rules stated above. These graphs were then translated into matrixes that can be read by the appropriate computer application[86] which transforms the system of connections into numerical measurements and sends them to a statistics program [87]. The whole process was reworked every time a new space or set of spaces was added. **Figure 1** shows a plan broken up into spaces according to the procedures defined above.

The syntactic measurements used in the present research are described in chapters 3 and 4. Results are displayed in tables numbered according to the chapter in which they are being discussed. The full data is also stocked in a floppy disk annexed to this volume (**disk 1**).

It is hoped that the explanations above have helped dissipate doubts as, for instance, about ... *what constitutes a room or closed space within a building* ... and how to *compartmentalise space outdoors into quantifiable units*[88] .

As for the problem of the limits ... *between a walled garden and a street*[89] , the information displayed in the data did not allow for a full investigation. Although the connections of ground areas to the exterior may easily be tackled when a clear definition of plot boundaries and accesses is available, a thorough assessment of these links was not possible in the present study as many drawings showed the front access only and most not even this. Thus, regrettably, the issue will remain only partially resolved, with the carrier space being considered to be somehow connected to the public space as if one could always enter back gardens, patios, etc. by going round the building or round the block, via a back street or alley.

Despite this obvious limitation stated above, it is trusted that the mode of representation was applied rigorously and consistently across the sample. However, by being well aware that ... *some measures are highly sensitive to*

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[86] *New Wave* developed for this purpose at the UAS, Bartlett.

[87] *StatView 512* $^{+\text{TM}}$

[88] Sanson, op.cit.p.6

[89] Brown in Sanson, op.cit.p.101.

subtle differences in the technique of representation ..., as Brown[90] has warned, one can only hope that supplementary evidence, fortunately available about most issues under investigation, may help to spot and neutralise *distortions* and *anomalies* which might have slipped into the process of graphical representation and numerical analysis.

[90]Idem, p.93.

CHAPTER 2

ON BRITISH HOUSE LAYOUTS. A GENERAL PROFILE

This chapter is an insight into some general spatial features of the plans that comprise the British sample. Its aim is to define, in broad terms, characteristics of dwellings designed for different social groups allowing the sample to be sorted out into distinct categories according to potential occupants. A synchronic as well as a diachronic view will be attempted . Although the body of data does not delineate a statistical sampling of the housing panorama according to social class, it is considered robust enough to actually represent the homes of various social groups, albeit not in numerical correspondence to reality.

2.1. Size as index of status

Because in the present body of data cold paper plans stand for real lived-in buildings in order to extract information otherwise collected from actual inhabitants one could try to go through the pages of the journals in search for clues about the people for whom each house was designed. This was actually done to a certain extent. However, trying to discover what Mr. so-an-so, did for a living would constitute a bulky piece of research in its own right. Besides, even such thrifty information was not always available either because it simply was not given or because the plans did not succeed into buildings, sometimes for not having been meant to in the first place, by being designed for competition, illustration or statement purposes. Therefore it seemed necessary that all essential information for sorting the sample according to potential occupants should be drawn from the plans themselves.

Various authors have classified houses after the number of rooms usually affordable by occupants of distinct status. Others have done the same according to the availability of certain functions. Since this study is primarily concerned with the ways cells relate to one another and to the whole complex, it was necessary to view each plan not only in terms of rooms but, most importantly, in terms of their links.

The total number of spaces — functional, transitional, storage and all, as defined in the item 1.4 of the previous chapter — constituted a starting point for sorting out the plans according to size. This was then correlated with the availability of certain functions and led, after a series of exploratory procedures, to the identification of broad groups of potential inhabitants. The number of storeys and the relation between the building and the plot added extra information and were considered at an early stage. Social categories achieved a finished profile after findings concerning number and availability of spaces and functions were fine tuned according to the labels that identify main living rooms in the plans.

2.1.1. **Counting spaces**

In order that size categories according to the number of spaces could be identified but also as a preliminary set of procedures to enable the application of space syntax techniques for a further approach of the object in terms of spatial configuration, each plan was, firstly examined in its most basic spatial features: the number of interior spaces, the number of storeys and the relation between the building and its plot.

The spaces in each plan were then counted and given a number, following the procedures described in chapter 1 for the investigation of interior spaces only — the minimal living complex. **Figure 1** exemplifies the described procedures. **Table 1** arrays the five hundred cases that comprise the British sample, numbered according to the date of publication and displays the source (as well as date of design when a gap between that and the time of publication was acknowledged), the type of occupation in the plot, the number of spaces, total, functional and transitional, the function to transition space ratio, the number of storeys, the number of day living cells as labelled in plans and the overall number of main living rooms (reception, service and bedrooms) in each complex. It also shows how the essential day functions — receiving, eating, cooking and washing up — combine in separate rooms or amalgamate in a same room in each complex and the labels used to designate those functions in each plan. The key to these labels is shown in **table 2.8**. Plans selected for further scrutiny are indicated.

It was found (**table 2**) that the minimal living complex of all plans range from seven to one hundred and two total spaces, with a mean number of 23.8, 11.3 of these being functional and 8.5 transitional, on average. Storage cells, vantage points (balcony, belvedere, etc.) and unidentified spaces thus accounting for around 4 spaces per house, on average. The spaces are distributed along one to six floors (mean number of 2.4). According to the building/plot relationship, 45.6% (228 cases) are detached, 25% (125 cases) are semi-detached and 29.4% (147 cases) are terraced. The mean number of reception rooms in each complex approximates 2, that of service-related cells is 1.9 and 4.3 is the mean figure for bedrooms.

It must be stressed that the above figures are by no means being taken as fully 'mirroring' reality. It is believed that whereas the range, say from seven to one hundred and two spaces do reflect, to a certain extent, (extremes excepted) that of the housing scene at the time, mean values cannot be taken as representative, not least for the fact that replicant plans were avoided in the data collection whereas in reality most middle-sized to small house layouts were endlessly repeated. Thus, averages will forcibly be pushed into a higher band. The same applies to the types of ground occupation with each plan of a detached house standing, in most cases, for one and only building and those of terraced dwellings being a model often to be reproduced in very large numbers. This renders, for example, the ratio detached/terraced equal 1.55, as found in the sample, a disparity between the data and the townscapes in most British urban settlements, greatly dominated by terraces.

However, such figures are useful for defining typological boundaries within the sample and must be regarded as operational tools that help to reveal spatial features and properties associated with the homes of certain groups of potential occupants. There is no reason to suppose, for instance, that the spatial attributes revealed by the investigation of large detached residences or small terraced dwellings in the sample do not correspond to those of likewise buildings in real settlements, even if one type is over represented at the expense of the other in the data.

2.1.2. **Sorting out functions**

With the purpose of verifying whether particular spatial layouts correspond to houses of different sizes, a broad identification of size groups, comprising large, medium-sized and small houses was attempted. *Large* , *medium-sized* and *small* building plans do not necessarily stand for upper, middle and lower class dwellings but shall be viewed as analytical categories to enable the investigation of variations in spatial availability which might translate different needs (or material resources) of diverse social groups.

Although British houses have been classified into social groups according to their size or the use of their rooms, a fresh approach was considered necessary, not only because this work is intended to stick essentially to empirical observations, but because the correlation between size and certain functions should define a social profile more accurate than one based on a single variable, as is usually the case in the available literature. However, results will be checked against textual references.

2.2. **Of size and functions**

The total number of spaces embody function rooms, transition routes, store cells and the odd vantage — balcony, belvedere — or unidentified space. Function rooms are defined as any cell, regardless of its size, with a designed specific use that involves people's occupancy for some length of time. Therefore, tiny sculleries and pantries, water (or earth) closets and bathrooms as well as housemaid closets equipped with sinks, are all part of this group. Conversely large walk-in closets, larders,cellars and any sort of storage compartment are not.

The variation in total number of cells within the plans in the sample created a special difficulty for sorting them out in terms of size because one could only guess at what number the next category should start. Besides, it was soon felt that the correlation between size and total number of interior spaces was in some cases hampered by the differentiation in the ratio between function and transition spaces within the sample. Some examples, specially multistoried town houses, have very complex circulation systems which do not correspond necessarily to abundance or choice of living space.

The problem was, therefore, to identify what variable, in terms of function spaces, correlated best with the overall size of the houses.

2.2.1. **Labels as deceiving clues**

The number of living rooms appeared to be the best variable to sort the sample according to size, and consequently, social groups since they are the locus of family life as well as that where the interaction with visitors occurs, besides varying within limited ranges thus, affording a less chancy choice. However, setting living and service-related rooms apart proved to be quite tricky. Although nearly all rooms were named, a further scrutiny of the plans showed labels to be deceiving clues for what had actually been the purpose of each room as conceived by the designer. For example, a room which by all clues had been designed for cooking and eating in a plan and one meant to be used solely for eating in another were often indistinctly labelled as *living room*. The presence or absence of fireplaces, cookers, ranges, sinks, boilers and dressers became valuable indicators to help distinguish service related from non-service living rooms and this was as far as it seemed advisable to go. In many plans with two (or three) ground floor rooms there was no mention or representation of ranges or cookers in or around the living room fireplace niche but the fact that no traces of a fireplace or, indeed, of any sort of heating apparatus (but for, perhaps, a boiler) could be found in the other ground floor room — usually labelled as *scullery* — was taken as an indication that the living room had also been designed for cooking. Sometimes a third living room was present in such examples but its front location and connections to the entry lobby — apart from its label — pointed unmistakably to its being the main reception cell.

Thus, after a close examination of each and every plan it became possible to sort out, within reasonable certainty, all day living rooms that included some sort of service-related activities, such as cooking or washing up, from those which did not. These will be referred from now on, as reception rooms as opposed to service rooms which may or may not *also* be used for activities other than service-related ones.

2.2.2. **On the availability of certain rooms**

The scattergrams on **figures 2** and **2.1** show the correlation between the number of main living rooms — reception rooms, service rooms and bedrooms — and the number of interior spaces. The three variables correlate well (R-sq.= 0.57, 0.657, 0.752, respectively, p.= 0.0001) with bedrooms presenting the best correlation. However, sorting out size groups according to the number of bedrooms implies a problem similar to that of the total number of cells since they range quite strongly in number across the sample and defining the intervals for breaking up each size band had to involve a little guesswork. It seemed thus safer to check on all three variables for a preliminary investigation on size.

The sample was then divided into size categories, according to the number of main function rooms. **Table 2.1** shows the availability of reception- and service-related rooms as well as bedrooms in the plans and the number of cases that conform to those parameters. **Table 2.2** relates each category to the number of interior cells, the number of storeys and the situation of the building and its plot. The three sets of figures show that larger houses have nearly forty interior spaces distributed into three floors and are mainly detached. Medium-sized houses, also mainly detached, have a mean number of interior spaces around twenty-three and a little over 2.3 floors; and small ones, mainly terraced and semi-detached, have a little over fourteen interior spaces, on average, and two storeys.

As it was observed that the proportion of transition spaces appear to vary greatly according to the type of ground occupation, size groups were examined for detached, semi-detached and terraced buildings (**table 2.3**). The function to transition spaces ratio ranges from around 1.4 to 1.7 for detached houses and from approximately 1.3 to 1.6 for semi-detached ones as well as for middling and small terraced houses. Large terraced houses, however, present a ratio of approximately 1. Average figures for each building/plot group do not translate this huge disparity. This seems to place large terraced houses as *sui generis* cases in the sample which must, therefore, be handled with care.

The figures displayed on **table 2.3** corroborate the general assumption that detached houses tend to belong in the wealthier lane of the social road, semi-detached in the middle and terraced ones in the humbler side, as far as mean number of spaces go and judging from the number of cases in each variables. Detached houses show fewer small complexes than semi-detached or terraced ones, regardless of the variable examined whereas semi-detached and, specially terraced houses show a larger number of small cases for the three variables.

Large detached houses tend to have around eighteen rooms, semi-detached ones approximately seventeen and terraced ones a little over twenty-one rooms. Middling detached houses have twelve rooms, on average, semi-detached ones around eleven and terraced houses nine or ten. Small detached buildings have around eight rooms and semi-detached as well as terraced ones something between six and seven function cells.

Stefan Muthesius[91] classifies the potential inhabitants of his terraced houses in eight groups according to the number of rooms. (1) At the top of the rank, ... *knights, peers, judges, merchants, or simply 'gentlemen'* ... with high incomes, who actually lived in country houses, held town houses inhabited by servants for most of the year, with about twenty rooms plus smaller rooms for the servants. These numbers, according to the author are also the equivalent of a medium-sized country house. (2) Next, came the rich ... *lawyers, merchants, upper civil servants* ... in fifteen-roomed dwellings in large terraces. (3) In a third group, ... *the 'professional man': lawyers, the successful doctor, the top range of clerks* ... in ten-roomed houses and poor accommodation for the average three female servants. (4) One or two servants, possibly accommodated ... *in extremely makeshift* ... conditions would share a house with seven or eight rooms with the ... *lower-paid professionals, like the higher clerks* ... (5) Between these and the lower ranks, shopkeepers and lower clerks, with perhaps a young female servant, inhabited six or seven rooms. (6) At the bottom of the lower middle-class, with no servants and ... *no firm dividing line* ... between this and the better-paid working-class, came the occupants of five- or six-roomed houses. (7) Below this group, occupying

[91] Muthesius, S. The English Terraced House , Yale University - New Haven and London, 1982, pp.44-45.

three- to four-roomed houses, ... *the great mass of the semi-skilled, ... miners and textile workers* . (8) At the very bottom and often housed in two rooms only, come the dwellings of ... *unskilled labourers.*

The mean number of just over twenty-one function spaces found in large town houses and that of around eighteen in large detached houses match roughly the number of twenty rooms identified by Muthesius for large terraced houses as well as for medium-sized country houses. As for medium-sized houses in this sample, the average of around nine or ten function rooms in terraced dwellings, eleven in semi-detached, and twelve in detached ones fall somewhere in between the second and the third group in Muthesius's account, whereas in the bottom band, an average six to seven function rooms in small terraced and semi-detached houses and of around eight in detached dwellings correlate roughly with what was found for the lower segments of the middle-class and the upper strata of the working class in the above cited work.

Muthesius also states that ... *mansions with more than twenty rooms, ... piled up in five or even six storeys on top of a basement, only appear in the 1850s and 60s in London, ...*[92] and that the ... *vast majority of terraced houses range from a maximum of twelve rooms down to four or five rooms not counting the smaller service rooms from the scullery downwards.* Indeed, of the one hundred and forty-seven terraced houses in the sample, only fourteen have over twenty function cells (ranging from twenty-one to thirty-one rooms). These buildings have from four to six floors (5, on average) and the oldest plan was published in 1894. On the other hand, one hundred and twenty-two cases, nearly 83% of all terraced houses in the sample, have between four and twelve function cells, corroborating that author's reference of such houses being the *vast majority* , although he does not count smaller rooms — *scullery downwards* — which are being considered in this study.

Helen Long[93] ranges her middle-class Edwardian houses in five groups according to the number of reception rooms and the number of bedrooms. At the top of the scale are the homes for the upper middle-class with four reception rooms and seven bedrooms plus a nursery besides other amenities, not particularly relevant for this investigation. The second band comprises

[92] Muthesius,S. op.cit., p.81.
[93] Long, op.cit., p. 31.

houses with three or four reception rooms and about five bedrooms. In the middle rank, houses for the middle middle class, with two reception rooms, perhaps a large living-kitchen too, and four bedrooms. The bottom two groups, designed for the lower middle classes, comprise houses with two reception rooms and three or two bedrooms.

Strong similarities between the breaking up of this sample according to the number of reception cells and bedrooms and Long's references can be found, particularly at the top and medium bands. In the lower rank, however, Long considers that two rooms could be used for reception purposes even in low middle class houses. For Stefan Muthesius[94] too, a minimum of ... *two reception rooms, one front, one back* ... could be found in five- to six-roomed houses without a basement, the type of building which, according to him, links lower middle-class and higher working-class dwellings.

In the present data a few houses with no space entirely exempt from some sort of service related activity were identified. As no such case is explicitly mentioned by the cited authors, it is believed that they are, in fact, arraying the *back living room* which in most cases amalgamated eating, cooking and general daily activities as a reception space. This seems to be reinforced by Muthesius's statement that ... *the back room was for ordinary living and the front room for 'best'* [95] and that the proportion of reception rooms to the rest in later nineteenth century dwellings was ... *one in two, or one in three in larger houses, and one to one is smaller houses* [96]. The only ratio that comes anywhere near these figures in the sample is that between the number of bedrooms and the number of reception plus service rooms (1.24) in houses with three bedrooms or less. This suggests that, at least as concerns small dwellings, what the author terms as *the rest* comprise mainly bedrooms whereas living plus cooking spaces falls into the reception category, thus widening the scope of two-reception roomed dwellings. On the other hand the existence of two reception rooms (in the sense that these functions are understood in this study) seems to have been common among even quite small houses, as shall be discussed shortly.

[94] Muthesius S, op.cit.p.48.
[95] Idem, ibidem.
[96] Idem, p.45.

The number of reception rooms was also used by Hermann Muthesius[97] for sorting social groups apart. Although stating that the main difference between larger and smaller country houses is availability of space rather than number of reception rooms, he considers that houses with four reception cells and spacious staff quarters bridge the borders between the two.

Twenty-nine houses with four reception rooms were found in the sample (**table 2.1**). These have from twenty to seventy-five spaces (45.6 mean number) and two to six storeys (3.5 mean). Such figures constitutes a strong leap up the size scale when compared to the average of around forty spaces and three floors of the top bracket previously identified, suggesting four-reception houses to be quite exceptional even for a sample tipped towards the top end of the size scale. This is, incidentally, emphasised by the referred author who admits that houses ... *with only three* [reception] *rooms in addition to the hall are much more common*[98]. He also considers two reception rooms plus a hall to be ... *the maximum reduction in reception rooms conceivable for a house of any sort of comfort, ...* and warns that such ... *house has few possibilities outside the lower middle-classes, unless the individual dimensions of the rooms are so large that it almost becomes a large country house.*

This does not come as a surprise when one considers that Hermann Muthesius, writing in 1905, would almost certainly share the disregard for all things ordinary among earlier authors who surveyed their object nearly always and only from a larger-than-life vintage point. It is quite remarkable how each paragraph of his study, although entitled *The English House*, grows more and more economical as the author climbs down the size rank. When one, at last, expects to learn something about the vast majority of 'English houses' in the item on *the small suburban house*, there comes the (death) sentences: *The programme of the workman's residence is too primitive and is dictated by external circumstances to too great an extent for there to be any possibility of its providing a fruitful stimulus ... We shall therefore refrain from discussing the workman's house.*[99]

Jill Franklin acknowledges nine as the largest number of reception rooms ever

[97] Muthesius, H.Op.cit., pp.129/130.
[98] Idem, ibidem.
[99] Idem, p.148.

provided in a country house but states that ... *seven or eight was more usual even for the most opulent houses ...*[100] . The largest number of reception rooms found in the sample was seven, in a house with ninety-four spaces and four storeys. In another, with over a hundred spaces, the largest in the sample, there were six reception rooms. Two others had five reception rooms and forty-six and forty-nine spaces, respectively. Therefore a total of thirty-three cases only (6.6% of the entire sample) had four or more reception rooms as opposed to a hundred and thirty-three (26.6%) with three or more. Because this number represents a reasonably significant slice of the sample and because this study intends to abide on the ordinary rather than on the exceptional side of things, a minimum number of three reception rooms was considered fit to settle the limits for the upper rank of the size ladder at this stage of the study.

Despite minor discrepancies, the parallells between the sample and the above references, have contributed a first support on the representability of the data, thus encouraging further scrutiny along the line of the availability of certain function cells for sorting potential social groups of occupants apart. A few contrasting nuances which resulted from the successive breaking of the sample according to those cells deserves, however, some examination.

The middle bracket in the reception group embodies a much larger number of cases than those in either the service or the bedrooms clusters, mainly at the expense of the small house group which becomes more reduced whether the sample is viewed as a whole (**table 2.2**) or according to the building-plot relationship (**table 2.3**). Therefore, the breaking of the sample into size categories according to the availability of reception rooms broadens the scope of middle-sized houses and reduces that of smaller ones. Besides, the very reduced proportion of detached plans among small houses in the reception cluster suggest that their status margins are being narrowed when this variable is defining size groups whereas that of medium-sized houses — with comparatively larger number of terraced houses — has expanded downwards.

So, more than the availability of a second reception room, the existence of an extra service room and of over three bedrooms in a house seems to have been

[100] Franklin, Jill. The Gentleman's Country House and Its Plan, 1835-1914. Routledge & Kegan Paul, London, 1981.

a privilege of fewer people. This also corroborates some of the references examined above which place two-reception houses in the lower middle class category. Regardless of whether those authors were mixing up cooking with receiving or not, it seems quite clear now that the mark of two reception rooms offers a somewhat flimsy boundary to sort size limits and, of course, social groups apart. These issues were expected to become clarified by being examined in a diachronic perspective.

2.3. **Of size and time**

The importance of World War I as a factor of alteration in British homes is generally referred to and changes in their interior layout attributed to the shortage of servants after the war.[101] Therefore, 1914 was the date chosen for splitting the sample into two period clusters so that change in time could be investigated. Size categories according to the three variables referred above, were reworked for the period 1843-1913 and for the period 1914-1930.

2.3.1. **The 'war effect'**

By contrasting the results previously arrived at in a diachronic viewpoint (**table 2.4**) considerable alterations were exposed. On the whole, before the war the border lines that set each size category apart seems better outlined and there is less variation among the averages of each category defined by the three variables. Larger houses have an average of approximately forty-one interior spaces and over three storeys; medium-sized ones have an average of around twenty-four spaces and 2.6 storeys; small houses have an average of a little over thirteen spaces and two storeys. The proportion of function to transition rooms is 1.4, on average for all clusters, although multiple bedrooms tend to go with more transition spaces.

Yet some variance again occurs in the middle and bottom categories. Taking the reception variable as reference, it can be seen that two-service-roomed houses are more numerous and have slightly lower average spaces whereas fewer houses have four or five bedrooms and larger average number of spaces. This leads to the conclusion that contrarily to what the sample, seen

[101] See Jackson, Alan. Semi-detached London: Suburban Development, Life and Transport, 1900-39. George Allen & Unwin Ltd., London, 1973.

as a synchronic whole, had indicated, before the war an extra reception room and, specially, the existence of a fourth bedrooms meant more of a privilege than that of a second service room which was found in over 82.4% (192 cases) of prewar houses, against 78.1% (182 plans) with an extra reception and only 73.4% (171 plans) with more than three bedrooms.

After 1914 small plans expand slightly in size, contract in height and grow dramatically in number of cases for all variable ensembles, and large plans shrink consistently in size, height and specially in number of cases as compared to their counterparts published before 1914 There occurs a general reduction in the proportion of transition spaces.

The discrepancies among different variables are also stressed. The figures in the upper and specially the middle size category across the three variable groupings are now a lot less homogeneous than those of the prewar size bands. In the upper lot, three-or-more reception houses are more numerous (40 cases) and have fewer spaces (av.33.2) than three-or-more-service-roomed houses (31 cases, 35.9 av. spaces) and, specially, than those with over six bedrooms (27 cases, 37.8 av. spaces). In the medium-sized bracket another feature is revealed. In both the service and the bedroom groups the averages as regards spaces and storeys constitute no radical change from the picture outlined before the war . On the other hand in the reception cluster the average number of cells falls greatly (19.8 against 24.8 before 1914) and the number of cases 129) increases in relation to the bedroom (78) and, specially to the service group (56). The great contrast therefore seems to evolve around the number of service rooms. Whereas 63.3% of wartime and post-war houses (169 plans) have two or more reception rooms a mere 32.6% (87 cases) have an extra service room after 1914. Next in line, featuring as rare commodities, follows a fourth bedrooms which is present in just 39.3% or 105 cases.

There are thus reasons to suppose that if before the war an extra reception room conveyed more status than an extra service room, the reverse occurred after 1914. However, when the total number of spaces was correlated with the three variables for the period 1843-1913 and 1914-1930, (**figure 2.1b/c**), the number of service rooms correlated better than that of reception rooms for *both* time periods. This led to a series of examinations. First, the sample was broken down into five clusters of equivalent number of cases, (**fig.2.2**). Only when the first hundred plans (published from 1843 to 1893) were considered, was the correlation between reception rooms and total spaces (R-sq.=0.656) stronger than that of service rooms (R-sq.=0.599) which became the strongest variable in the next cluster (1894-1909). The next two clusters (1909-1925) presented weaker correlations for all variables and a lot of cases overlapping. After 1925 correlation and graphs improve for reception rooms (R-sq.=0.589) and, specially, for service rooms (R-sq.=0.641) and bedrooms (R-sq.=0.776).

As the plans in the third and fourth clusters included the war years it was thought that perhaps this had something to do with their weakened correlation. A series of different and narrower breaking-ups were carried to explore this issue . After successive attempts at different intervals it was found that the 1915-22 bracket (108 cases) generated the poorest correlation (R-sq.=0.182, 0.446 and 0.46) for all variables (**fig. 2.3**). Among plans published between 1843 and 1893 an unusually large plan pulls the regression line upwards. When this outlier discounted the reception graph remained still more strongly correlated than that of service rooms. Between 1894 and 1914, the number of service rooms correlates better (R-sq.=0.61) than that of reception rooms (R-sq.=0.485), same applying for plans published after 1923.

Thus, the set of procedures described above besides some additional exploration not worth mentioning, led to the identification of four time periods in which there seems to have occurred some alteration in the spatial programme of dwellings designed for distinct social groups.

The emphasis on the availability of multiple reception rooms until around 1893, seems to have shifted to service rooms from the turning of the century to the years prior to the war. The concentration on the publication of small plans weakens the possibility of a satisfactory correlation between size and availability of functions after 1915 and as far as 1922. After 1923 service rooms again correlate better than reception rooms with overall size.

The next step was to work out the frequency distribution of plans according to the number of main living rooms at those successive time periods in order that a broad outline of what might have constituted the designer's brief for the dwellings of distinct social groups across time could be established.

Tables 2.5 and **2.6**, show the frequency distribution of main day living rooms in size groups restricted by number of bedrooms (the most powerful variable throughout the time span, as seen) for the four time periods identified above .

Before the war 45.4% of nineteenth century houses with more than six bedrooms had only two service rooms (table.**2.5a**), this figure drops to 19% in the next two decades (table.**2.5b**). During and after World War I the availability of service cells is reduced for all size clusters (table.**2.6**). This seems to be the most significant finding as concerns the relationship between size and function. It suggests that a new brief, more economical in terms of service-related spaces was adopted. The tables also emphasize the radical concentration on the publication of low profile plans between 1915 and 1922 , with the virtual disappearance of houses with more than five bedrooms.

A new way to view the sample in diachronic terms emerged therefore from the above described procedures. It may thus be concluded that up to around 1890, the number of reception rooms in a house was a good index to status whereas in the turning of the century and again, after the war, this became more strongly associated with the availability of service rooms.

Notwithstanding the objection raised earlier, due to the alternating tendencies for the number of reception and service rooms to equate satisfactorily with size over time whereas a more stable correspondence was verified as concerns the number of bedrooms, this variable will be chiefly applied in the next procedures. However, any of the three variables can and shall be used whenever deemed more appropriate, on its own or combined, to narrow the scope of each group.

The consistencies within the sample itself and in respect to the references reviewed so far, suggest that the data under investigation suits its aim, that of portraying the spatial organisation of British middle-of-the-social-road domestic buildings, ranging from upper middle-class to upper working-class dwellings with a few cases in the top and bottom band extrapolating these marks. These rather than diminishing the sample's representativeness is thought to contribute for a clearer demarcation of its limits.

Whether some findings, such as the increase in number of small house plans after 1914, certainly indicate bias in the sample and reveal how the interest surrounding dwelling buildings shifted in time, the bulk of what has been disclosed has, it is believed, little to do with the preferences of editors and much with the nature and development of housing in Britain. Among these it is worth emphasising:

1. A general shrinking in height and number of interior spaces in upper class houses during and after the war..

2. A slight increase in number of interior spaces within small houses during and after the war.

3. A significant reduction of space invested in the circulation system after the war.

4. The presence of multiple reception rooms as index of status in earlier house plans.

5. That of service rooms as index of status in turn-of-the-century dwellings.

6. The number of service rooms as index of status in postwar houses, with a third service room becoming a rare commodity.

The above findings support the thesis of a spatial rearrangement in British postwar houses and suggest that this rearrangement led essentially to less differentiation in the availability of spaces among the homes of distinct social groups to less fragmented circulation networks and to a reduced number of service-related cells.

2.4. <u>**Of functions and labels**</u>

It has been said that the labels in the plans posed misleading clues because a same designation in different plans often translated diverse use. In order that a primary investigation on functions could be attempted, this difficulty was overcome by sorting out reception and service-related rooms apart, as has already been seen. However, it was later found that valuable information about use and social status could be drawn from a second scrutiny on labels.

By departing from the three basic day activities — cooking, eating and receiving — generally performed within the domestic milieu and by trying to identify which designation had been given to the rooms apparently intended as the main setting for each of these activities, it came out that some specific room labels and/or the association of certain labels were more likely to be found among plans of a determined size bracket.

In 69.2% of the sample (346 plans), three distinct spaces seemed designed to accommodate, each, one of the three major daily activities whereas in seventy-nine cases (15.8%), eating and cooking amalgamated in the same space; in fifty-nine plans (11.8%), one room only had apparently been designed for both receiving and eating and in sixteen cases (3.2%) all three activities were meant to take place in the same cell (see **table 2.7**). Again these percentages should be taken as operational due to the tipping of the sample towards the wealthier side of the social scale.

Table 2.8 shows that although thirty-four different categories, or families of labels, ranging from one to three day living rooms, were found in the sample, nine of these alone embody 428 plans or 85.6% of the total number of cases.

2.4.1. **Labels as valuable clues**

Table 2.9 shows the minimum, maximum and mean number of spaces and of storeys in houses that present any of the nine most frequent living room families. Houses with a *drawing* and *dining room* plus *kitchen* comprise the upper-sized houses. A *sitting* and *dining room* plus *kitchen* layout follows. Next comes *living* and *dining room* plus *kitchen* types. *Parlour* and *living* plus *scullery* along with *parlour* plus *living* plans share roughly the same band as do, following suit, the plans with a *living* plus *kitchen* and a *parlour* plus *kitchen* layouts. At the bottom of the size scale, sit the houses with a *living* plus *scullery* along with those in which all basic day activities concentrate in a *living room* only.

The mean number of storeys correlate directly with the size rank. It becomes, thus, quite clear that after the *drawing and dining room* set of spaces, the combination *dining room and kitchen* becomes the most reliable index of status, as far as labelling in the sample goes. The combination of a *parlour and living room* constitutes the next size rank followed by the houses in which a *kitchen* associated with either a *parlour* or a *living room* can be found. The addition of a scullery where cooking (besides washing up) is done does not appear to make any difference whatsoever.

Robert Kerr[102] opens up the item on day-rooms in his instructions on *How to Plan English Residences* with considerations about the *dining-room* to which he attributes the strongest ceremonial character of all reception rooms. In the item on *convenience*, one of the twelve commandments that ... *form ... the test of a Gentleman's House*[103] he states that ... *If the family be distinguished for hospitality of one sort, the development of the Dining-room and its accessories, and also of the Kitchen department, must be a prominent feature of the plan; if, on the other hand, hospitality be equally great, but in another form, it is the Drawing-room and the ladies' department which must be made to excel. Again, there are families who see few visitors, but cherish stately habits; and there are others who follow a simple mode of life, but receive at the same time large parties of friends.* It is therefore suggested that the author views the dining room as a natural scenario for *stately* gatherings whereas the more feminine drawing room is better suited for *simpler*, although possibly ampler, hospitality.

He also presents an extensive list of guidelines on the ideal situation of the dining room (i.e., it must never be situated in the lawn —the ladies' realm — façade), its furnishing, layout and positioning in relation to other spaces. These include subtleties of detail such as the need to avoid direct sunlight into the room because ... *when a gentleman does honour to his guests by displaying his plate, its effect is destroyed by the glare of light ...* , and the need

[102] Kerr, op.cit.p.104.
[103] Idem,p.81.

for a specifically designed route connecting this to the drawing room so that the displacement of family and guests from one room to the other can achieve its necessary pomp. ... *inasmuch as there may be no other state whatever in the habits of a family, there will be at least a little of that quality occasionally in the act of proceeding to and from dinner. Stress ought to be laid upon spaciousness for such a route; also some extent of length; and, lastly, directness, or the absence of turnings.* This and the description of the dinner procession by Jill Franklin, cited below, corroborate Kerr's conception of the dining room and explain his conviction that... *amongst the entire list of the apartments of a Gentleman's House, the Dining-room, if it is to be perfect, is probably in every instance the most fastidious in its demands; ...* [104]

Jill Franklin[105] says that when ... *dinner was announced, the host gave his arm to the most important lady present; the rest of the company ranged themselves behind him, two by two, normally in order of precedence, and the whole procession set off for the dining room. The route which it took was called the Dinner Route, ... This formality was still being observed up to 1914.*

Like Franklin, a number of authors engaged in describing the Victorian house share Kerr's views on the importance of the dining room as the setting of social domestic life *par excellence.* Franklin[106] also states that ... *the early Victorian dining room breathes solemnity as much as a courtroom.* and for Mark Girouard, dining and drawing room ... *reigned as king and queen over the other rooms* [107], one being the masculine the other the feminine materialisation of the reception milieu in the house. Authors also tend to agree that a proper dining room was a place for eating only.

Burnett[108] , however, writing about the suburban middle class house, maintains that ... *by the end of the century the importance of the dining-room as the principal room of the house was beginning to suffer some decline ...* It should be mentioned that his views on *the importance* of this space, contrarily to the above cited authors do not rest on its stately nature but on its role as the

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[104] Kerr, op.cit. p.110.

[105] Franklin, op.cit.p.50.

[106] Idem, ibidem.

[107] Girouard, Mark. Life in the English Country House. Yale University Press, 1978, 233.

[108] Burnett, J. A Social History of Housing, 1815-1985, Routledge, 1991 (referred edition), 1st edition (1980), p.208.

principal living room as can be understood from his account that the dining room had ... *also served as the family living-room, with the drawing-room preserved from the children and reserved for evening use and entertaining ... By the turn of the century the function of the dining room was ... becoming limited to the serving of meals and ... for use as a writing-room where the house did not contain a study, while family life increasingly centred round the morning-room during the day and the drawing-room in the evening ...* The presence of a third and perhaps a fourth reception room — morning room and study — indicates, as has been seen, that the dwellings being referred are those of, at least, the upper middle-class.

If Burnett (and the other references) is correct, it is to be understood that in the houses of the well-to-do middle class a *dining room* had also been a setting for other activities but was gradually adjusted to a pattern of use which was current in the homes at the top end of the society.

Such issues cannot, of course, be checked at this stage of the present study since it is impossible to predict, by looking at the plans, whether other activities were excluded from the dining room or not. However, some speculation on this line will be attempted when plans are analysed individually and their measures of integration compared.

In the British sample, a second reception room was present in two hundred and fifty-seven plans out of the two hundred and sixty comprising a *dining room*, and two, or more, other reception rooms were found in one hundred and twenty-seven cases. Although it seems beyond doubt that eating and entertaining to a meal would go on in spaces labelled as *dining rooms*, the question on whether this would also be the main setting of daily living will have to await individual scrutiny of some plans to be carried out in the next chapter. On the other hand as only thirty-three cases have a *morning* (or *breakfast*) *room*, Burnett's acknowledgement that daily living gradually moved into this room would apply, if at all, very scarcely in this sample.

The *drawing room* is viewed by Kerr as an essentially female space and less demanding in design skills and specificities, although he acknowledges this to be the main reception room for entertaining, specially in the evening. Fewer guidelines are prescribed for this cell, the most important one being to make it unmistakably lady-like. Diversely from the dining room there is, according to the author, ... *only one kind of Drawing-room* ..., there being ... *little difference, except in size and evidence of opulence, between that of the duchess and that of the simplest gentlewoman in the neighbourhood. Consequently, although in most respects the chief room of the house, it is, perhaps, the most easily reduced to system of any*[109]. Kerr's rules for relating the drawing room with other spaces are also less tight, although the need for some formality of access is granted. The main canon seems to be that governing its connections with the dining room, followed by the recommendation of a more or less formal route to the entrance door. ... *The internal position of the Drawing-room ought to be such as to afford an easy, but nevertheless, according to the case, sufficient stately route of access from the Entrance door.*[110]

In the sample, the presence of a *drawing room* correlates with larger sized houses more strongly than that of a *dining room.* A mean number of 34.4 (ranging from 15 to 102) spaces was found for the one hundred and ninety-one plans with a drawing room, against an average 31.4 (from 13 to 102) spaces for the two hundred and sixty cases with a dining room.

This leads to the supposition that whereas in the upper ranks the combination *drawing and dining rooms* was a taken-for-granted one, a little down the social lane, as represented in the sample, a *dining room* seems to have been more regarded more strongly as a home's essential.

A third reception room is regarded by some authors as a *must* in households of any importance. Hermann Muthesius[111] views a *library* as this necessary complement to the ... *two pillars of the room system* , the drawing and the dining room. However, Jill Franklin[112], for whom a library, in some Victorian country houses, did not only complement, but could exceed in importance, as a reception setting, any of the other rooms, maintains that libraries became, gradually less indispensable, shrinking in size and relevance, so that from

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[109] Kerr, op.cit., p.119.
[110] Idem, ibidem.
[111] Muthesius, H, op.cit.p.85.
[112] Franklin, op.cit.p.43.

1890 to 1914 ... *nearly half the houses had no library.* [113] Indeed, although only twenty-four plans in the sample have a library, twenty-one of these were published before 1914.

Kerr[114] does not advise excessive elaboration for the library whose ... *style of design and decoration ought to be, ... subdued beyond the average of rooms.* Although conceding that ... *the family collection, and the bookcases in which this is accommodated form the chief furniture of the apartment. ... it would be an error, ..., to design the Library for mere study. It is rather a sort of Morning-room for gentlemen than anything else.* So much so that ... *when the owner is a man of learning, we must either add a Study or constitute the Library itself one. In short, the Library, which has hitherto been a sort of public room, somewhat of a lounge indeed, becomes now essentially private* [115]. Besides functioning as a morning retreat where gentlemen dealt with their mail, did some reading and generally lounged, the character of the library for complementing or extending the reception area of the drawing room is also stressed by Kerr who reminds the designer of the convenience of adjoining the two rooms so that they ... *can be thrown together in the afternoon*[116]

Of the twenty-four plans with a *library*, twenty-two also include a drawing and a dining room. In the other two the library appears associated with a large room labelled as *living room.* Their layouts suggest that, in these houses, the library functioned as the main setting for entertaining without a meal whereas meals were taken in the living room, perhaps also used as daily family room. Such arrangement resembles very much what Kerr refers as the *dining-and-sitting-room* in smaller as well as considerably-sized houses where this space will rank a step behind, as long as formality goes, in relation to the drawing room, and may be directly connected to it. In such cases, ... *the seclusion from the Drawing-room façade, becomes not only unnecessary, but inappropriate; ...*[117]

Only five houses in the sample have a room labelled as *sitting room* apparently also designed for eating. **Table 2.10** shows their overall and

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[113] Idem, p.48.

[114] Kerr, op.cit.p.129.

[115] Idem, p.131.

[116] Idem, p.130.

[117] Idem, p.114.

mean numbers of spaces, storeys, reception and service rooms as well as that of bedrooms. The data defines a profile very middle-middle and, in general terms, unquestionably lower than the one resulting from all plans with a *dining room*, also shown. However, the minute number of cases of sitting-room types as compared to that of dining-room types, prevents all reasonable comparison.

To Stefan Muthesius the most prestigious reception room was the *drawing room*.[118] As this author deals with the terraced house and with a social enclave which is closer to the middle than to the fringes of the social scale, it appears that. the presence of a drawing room, as a sign of status, seems to hold essentially for the middling layers whereas in larger houses, drawing rooms, as has been suggested, were commonplace..

The identity of *living rooms* has been, as already seen, the less easy to grasp. Mark Swenarton[119] explains that ... *In traditional working-class houses, the living-room was equipped with a coal range and served for cooking, as well as for eating and general living.* This had been guessed at a very early stage by noticing that in many small plans a large fireplace in the living room was the only sign of a cooking facility in the dwelling. However, the sample revealed that apart from its role as actual *living room* of the modest home, these rooms range from a drawing-room-like type of reception setting to a sort of all-purpose spares, having therefore to be viewed always in the perspective of the other day rooms in the compound. They can be a setting for receiving, eating and cooking as well as for any of these functions combined in twos or threes and they can also be used as an intimate lounging space or alternative informal reception room in larger houses.

Table 2.10 shows that houses in which the main room designed for eating is labelled as *living room* tend to be smaller than those with a *sitting room* apparently used for meals, and specially than the ones with a *dining room*, provided that the reduced number of sitting-room cases can be taken at any value. Living rooms and parlours are generally ignored by authors concerned with nothing less than lordly dwellings.

[118] Muthesius, S.,op.cit.p.45.

[119] Svenarton, M. Homes Fit for Heroes, Heinemann Educational Books. London. 1981. P.99

Stefan Muthesius refers to the *parlour* as the most important of the two reception rooms, usually the front room, in five- to six-roomed houses. Other usual names for this room could be ... *'sitting-room', 'best room', ... or 'living-room'* ... but ... *the unheated unused working-class parlour of small houses, with only two rooms and a scullery on the ground floor* ... continued to mark an important social distinction well into the twentieth century.[120]

To Burnett[121] the ... *separation between washing in the scullery, cooking and living in the kitchen and display in the parlour, which could be further refined by using a gas-cooker in the scullery and reserving the kitchen for family living* defined a prewar working-class house that ...*was eminently 'respectable' in the south of England and 'superior' in the north.*

Parlour and living layouts comprise the next largest plans after all *dining plus kitchen* types (**table 2.9**). The next size cluster displays a *living-plus-kitchen* or a *parlour-plus-kitchen* arrangement. However, it does not seem to make much difference whether these constitute two rooms *and* a scullery or not. These houses occupy a similar size niche regardless of they being two reception-roomed (when cooking goes on in the scullery) or one reception-roomed (when cooking and eating amalgamate). This clarifies the apparent inconsistency between size groups defined by the number of reception rooms and by the other variables initially found.

Sculleries have deserved little comments in the literature. They tend to be unanimously and generally treated as the place where the dirty work — preparing animal and vegetable food as well as washing up — to and from the kitchen was done. This perhaps explains its rather low profile in the size versus label categories.

According to Swenarton[122] in order to meet the desire ... *to eliminate from the living-room the dirty work and particularly the cooking of meals* ... as expressed in the Tudor Walters Committee Report of 1918, a gas cooker began to be installed in the scullery as an alternative to the living room range. Burnett[123]

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[120] Idem, p.48

[121] Burnett, op.cit., p.163.

[122] Swenarton.,op.citp.99.

[123] Idem, p.231.

registers ... *a growing tendency to use the living room/kitchen purely as a sitting and dining room and to banish all work to the scullery — 'the modern workshop'* around 1923.

In later plans of the sample, cookers appear represented by a small rectangle, sometimes inscribed with the words *gas cooker* or the letter *G.C.*, specially between 1915 and 1922 when there seems to have occurred a massive upgrading of sculleries into a setting for cooking. In this period over 50% of plans show traces of cooking apparatus (large fireplaces or the referred cookers) in sculleries against 7.8% before 1914 and 17.6% after 1923.

However, the lower percentage of such cases after 1923 is not being taken as a reduction in the trend but to be a consequence of the higher number of medium and large plans published in the period. In these houses cooking (and often washing up) is done in the *kitchen.* Thus, findings confirm Svenarton's and Burnett's account of the changing character of sculleries in later times but indicate that this process occurred earlier than the latter estimates.

Contrarily to sculleries, *kitchens* seem to have the power of raising standards quite significantly as can be measured by figures of *living plus kitchen* plans, a cut above those of the single *living room* type.

The *kitchen* was unanimously, by far, the most important space of all service-related cells, or service *offices* as commonly named by earlier authors. This compound became , according to Franklin[124], increasingly more complex between 1840 and 1870. Yet, of the thirty-four houses with four or more service rooms in the present sample nineteen plans (nearly 56%) were published between 1894 and 1903 suggesting that, at least, in the not-so-classy environ portrayed by the present data, the turning instead of the mid-century saw the heyday of the service quarters.

Girouard stresses the service half of country houses as the area ... *in which technology and organisation were specially on show*[125] . Judging from the chapters on the kitchen layout and fittings in Jennifer Davies's account of the

[124] Franklin, op.cit.p.91.

[125] Girouard, op.cit.p. 276.

Victorian kitchen,[126] Girouard's comment does not sound a bit overstated. A labyrinth of routes to allow food but prevent smell from travelling to the family quarters, a complex system of ancillary cells for very specialised tasks and storage purposes, an ever increasing arsenal of tools and machinery endlessly reinvented and improved, and an army of servants to run the show is what appeared to have been the scenario of the service quarters in large country and town houses with the kitchen itself as the focal point.

Notwithstanding the obviously disproportionate comparison between the service rooms in this study and the rather spectacular portrayal of a grand-scale service wing, what arises as the crucial watershed, as far as status and labels are concerned, is the fact that a house which could boast one room reserved solely (or at least named as such) for eating and another exclusively designed for cooking would be considered distinctly superior to the ones which did not.

Although the over representation of the *drawing-dining-kitchen* layout betrays a bias towards the upper status band in the present body of data, it is believed that an actual portrayal of the social weight behind the labelling of main living rooms in British houses has been sketched. A scale of room designations ranging from more to less status can be summarised as follows:

1) The combination *drawing and dining room* associates with top of the rank dwellings.

2) *Dining and kitchen* layouts (when a drawing room is not present) also relate to classier orders but will generally represent an enclave a cut below that comprising drawing and dining room arrangements.

3) A *parlour and living room* layout bridges the gap between medium and small houses.

4) A *kitchen and* either *parlour* or *living room* compound relate to the top half of the lower size band.

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[126] Davies, Jennifer. The Victorian Kitchen. BBC Books. London.1989.

5) At the bottom of the size ladder features plans in which the principal day cell (apart from and regardless of the presence of a scullery) is labelled as *living room* .

2.5. Of size, time, labels and social groups

Table 2.11 presents the frequency distribution of main label families for the periods 1843-1893, 1894-1914, 1915-1922 and 1923-1930. Since only one variable could be used to sort out size groups lest a same plan would be counted more than once, the number of bedrooms, by generating the best correlation throughout the study period, was chosen.

It can be seen that 97% of nineteenth century large houses have a *drawing and dining room plus kitchen* layout. The rates fall to 53.6% for middle-sized dwellings and to a mere 12.8% in small ones. On the other hand all middle-sized houses have a *kitchen.*

Between 1894 and 1914 the amount of plans presenting the *drawing-dining room* combination is slightly reduced in larger houses but increases in middle-sized ones whereas a *dining plus kitchen* arrangement increases in both clusters. *Kitchens* remain a *must* in large and middle-sized dwellings. The presence of either set of spaces as well as of *kitchens* decreases among small houses.

During and in the aftermath of the war no houses with six or more bedrooms can be found in the sample. The rate of *drawing and dining room plus kitchen* falls greatly in houses with four or five bedrooms and disappear among small houses. The presence of a *kitchen* is reduced in the former group and becomes a rare commodity in the latter.

After 1923 the presence of a *drawing plus dining* layout is drastically reduced, in top size houses and specially in medium ones but accounts for over 10% among dwellings with up to three bedrooms. A *dining plus kitchen* arrangement remains very strong among larger buildings and reaches record rate among medium ones. *Dining rooms* as well as *kitchens* can also be found in a significant proportion of houses with three or less bedrooms

The figures suggest that the presence of a *drawing room*, an obligatory feature of nineteenth century well-to-do homes, spreads into lesser enclaves in the turning and during the first decades of this century and tends to disappear after 1914, its function being taken over by: cells formerly designed as alternative reception rooms (e.g. *music, library,hall,sitting*, etc.); by a *living room*, formerly only used as main reception room in modest dwellings; and by newly created labels such as *lounge*. *Dining rooms* although remaining a very important compartment in upper residences, may, in later times, also be substituted by a *living room*.

It is believed, however, that the larger rate of *dining plus kitchen* layouts found after 1923 within small houses, does not translate a stronger presence of these commodities in modest dwellings but the fact that middling households increasingly conform to a three-bedroom arrangement rather than to the four or five bedroom layout of previous times. This fact is acknowledged by Long[127] to whom by ... *the end of the Edwardian period, the basic foundations of the inter-war home had been laid — two storeys, three bedrooms, single-family occupation, inside toilet and bathroom, electric lightening, telephone, and a small garden, with maybe a 'motor house'.*

The above mentioned procedures helped to liberate social categories from the straitjacket of number of rooms or availability of functions and enabled the realignment of the sample into categories defined by restrictions according to any of the three variables, sole or combined, which also vary in time. Thus the rigidity imposed by one variable — i.e. number of bedrooms — viewed in a synchronic perspective could be slackened to allow for changes in time as well as for individuality to enter the data. A household of a well to do bachelor or childless couple may well have fewer bedrooms than that of a less wealthy large family and still bear the signs of its own social level. On the other hand the programme for an upper middle class residence in the nineteenth century differed from one designed for a family of comparative status after the war.

Table 2.12 displays the new set of requirements and restrictions for establishing categories according to the social status of potential occupants at

[127] Long, H. op.cit.,p.177

successive time periods.

Before 1893 houses with four or more bedrooms and three or more reception rooms constitute the top bracket in the sample; middle middle class programmes include two reception rooms, a service room labelled as *kitchen* and three or more bedrooms; whereas lower middle class plans have one or no reception rooms and three or less bedrooms. Seven out of one hundred cases did not conform to the restrictions above. These were examined individually and sorted out as follows: a house with only one reception room but four service rooms and five bedrooms was considered upper middle class; three reception rooms but only one service room in one case and only three bedrooms in another pushed these down to the middle rank; two reception rooms but no *kitchen* in one case, two reception rooms but only two bedrooms in two others and four bedrooms but only one reception room in another, sent these four into the lower category.

Between 1894 and 1914 upper middle class houses (and over) were defined as having four or more bedrooms, two or more reception rooms, one being labelled as either a *drawing* or a *dining* room, three or more service rooms, one being a *kitchen* and provided that reception and service rooms add up to six or more cells. Medium ranking dwellings have three or more bedrooms and may have two or three reception rooms and two or three service rooms, one being a *kitchen*, provided that these together do not exceed a number of five. At the bottom of the rank feature the plans with up to four bedrooms, none to two reception and one or two service rooms that added up do not exceed three cells. Three exceptions were found: a plan with three reception rooms and three service rooms but only three bedrooms was pulled up into the top category; two others with two reception rooms and only one service room each, plus six and five bedrooms, respectively, both including *dining rooms* and *kitchens* were considered middle of the rank.

From 1915 onwards upper middle class plans were considered those with four or more bedrooms and having either two reception and two service rooms, provided that these comprised a *drawing-dining-kitchen* layout, or with two or more reception rooms and three or more service rooms, *dining room* and *kitchen being* included. Middle middle class ones have three or more bedrooms, one to two service rooms and two to three reception rooms, one being either a *dining room* or a *sitting room*. The bottom group has up to four bedrooms, none to two reception rooms and one or two service rooms which added up do not exceed three cells. Of the six examples that did not fit the restrictions, three (with three service rooms, each) were considered as middle ranking although neither a dining nor a sitting room was present and so were two others, (for being dining *plus kitchen* types), in which the number of reception rooms did not match the stated bracket. The sixth exception, a plan with only one reception room and one service room but six bedrooms was pushed down into the bottom bracket.

The pains undertaken for working out these rather tedious procedures were considered worthwhile because it is now believed that a picture of the sample in terms of their potential occupants has been constructed. This enables the study of spatial articulation that follows to be grounded on a fairly reliable social mapping of the housing panorama in Britain, a necessary premise for treating patterns of spatial articulation as materialisations of socio-cultural themes. Furthermore, middling homes, which might have served as models for middle class suburban dwellings in Brazil can now be sorted out from those which, by associating with the homes of groups closer to the extreme ends of the social scale, were less likely to have fulfilled that role.

CHAPTER 3

ON BRITISH SPATIAL CONFIGURATION: A SYNTACTIC PROFILE

This chapter is a syntactic investigation of British houses. It aims to explore global models of spatial configuration in the sample, to ascertain whether recurrent patterns of integration hierarchy concerning key domestic functions can be identified and how they behave across time and social status.

3.1. **Walls, doorways and social nexus**

A broad if somewhat shadowy picture of late nineteenth and early twentieth century houses has emerged from the basic analysis applied to the British sample in the previous chapter. Consistent correlations enabled a general idea of how much space distinct social groups of potential occupants were likely to have afforded, before and after World War I, and what sort of use normally associated with some of these spaces, according to the needs of those groups. It has also been seen that a common designation for rooms used for a similar purpose in houses of a different class of inhabitants was not good enough to identify their designed use but that semantic adjustments were necessary to fine tune these functions to their proper status. Furthermore, it has been found that functions as well as labels were partly altered along the period.

However, the number of spaces in a house, the use designed for them, and even the subtle connotations underlying the term by which they are referred to are still far from revealing the cultural ethos of a society's domestic milieu, a distinctive way of behaving within home boundaries which might have contributed towards altering the ways in which people of other cultural realms behave or at least capable of leaving detectable traces of its presence at a certain stage of the development of another society's domestic models.

The next step towards deciphering the social soul of the British house was, then, to investigate its spatial structure, led by the notion that a building's ... *spatial pattern can, and does, in itself carry social information and content* ... , the kernel assumption of the methodology chosen as the main investigation tool in the present research. It is believed that by ... *giving shape and form to our material world, architecture structures the system of space in which we live and move* ... [and] ... *provides the material preconditions for the patterns of movement, encounter and avoidance which are the material realisation — as well as sometimes the generator — of social relations.*[128]

Granted that buildings are networks of walls and doorways which orders a void for the purpose of separating and connecting functions and the people who perform them, it is believed, that by inspecting the way in which those elements were put together to enable the daily movements of a certain group of people at a certain period of time, a record of their behaviour is being inspected much in the way that archaeological evidence from a past era is dug out.

3.1.1 Spatial configuration and the quest for privacy

Hermann Muthesius comparing English and German houses finds that ... *the most striking difference is the lack in England of communicating doors between the rooms, which means that the only access to a room is from a passage or hall. Thus the English room is a sort of cage, in which the inmate is entirely cut off from the next room.*[129] He also stresses as ... *a major concern ... that the paths of the servants and of the family and visitors shall never cross...*[130]

Girouard[131] views the increase in the complexity of the circulation network as a crucial aspect of seventeenth century English country houses. In particular, the introduction of backstairs, spared those of gentle birth from much discomfort in terms of crossing paths with unwelcome people and their business. *The gentry walking up the stairs no longer met their last night's faeces coming down them. Servants ... became, if not invisible, very much less visible.*

[128] Hillier & Hanson, 1984, op.cit. pp. xi and ix

[129] Muthesius, H. Op.cit.p.79.

[130] Idem, p.95.

[131] Girouard, op.cit.p.138.

What Muthesius terms as a *cage* - like room is referred by Robin Evans[132] as the *terminal room*, a dead-end cell linked to a transition space. This mode of spatial articulation defines, according to the author, the *corridor plan* as opposed to a matrix of interconnected rooms, both referred in chapter 1 of the present study. According to Evans[133] the ...*history of the corridor as a device for moving traffic from rooms has yet to be written.* He adds that from the little evidence he had ...*so far managed to glean, it makes its first recorded appearance in England at Beaufort House, Chelsea, designed around 1597 by John Thorpe. ... .. staircases began to be attached to the corridors and no longer terminated in rooms.*

After 1630 these changes of internal arrangements became very evident in houses built for the rich. Entrance hall, grand open stair, passages and backstairs coalesced to perform a penetrating network of circulation space which touched every major room ... the passage was for servants: to keep them out of each other's way and, more important still, to keep them out of the way of gentlemen and ladies.

What appears to be an obsessive desire to keep activities apart and, specially, to separate the communities of adult family members and their guests from the rest of the household is thought to have reached state-of-the-art condition in the Victorian period and may be summarised, in its strongest colours, through the writings of Robert Kerr, specially on his design guidelines on *Privacy.*

Primarily the House of an English gentleman is divisible into two departments, namely, that of THE FAMILY, and that of THE SERVANTS. ... this element of character must be considered essential; and as the importance of the family increases the distinction is widened, ... [134]

The idea here implied ... being the basis of our primary classification. ... the Family Rooms shall be essentially private, and as much as possible the Family Thoroughfares. It becomes the foremost of all maxims, ... that the Servants' Department shall be separated from the Main House, so that what

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132 Evans, op.cit.p.268
133 Idem, pp. 271-272.
134 Kerr, op.cit.p.71.

passes on either side of the boundary shall be both invisible and inaudible on the other. ....

The idea which underlies all is simply this. The family constitutes one community; the servants another. Whatever may be their mutual regard and confidence as dwellers under the same roof, each class is entitled to shut its door upon the other, and be alone.[135]

The complexity of the circulation network and the confined character of the rooms in British houses, at least in those dating from the late eighteenth century onwards, are perhaps the most recurrent themes in the study of this nation's domestic space.

In syntactic terms, a set of rooms linked to different segments in a chain of transition spaces by way of a single door — the image of the British home as outlined in the referred literature — configures highly asymmetric and nondistributed complexes.[136] This model has been identified in a number of studies utilising space syntax techniques as, for instance, in seventeenth century houses in the Banbury region,[137] in traditional working-class terraced houses[138] in London, in apartments in North London,[139] in houses built recently in Milton Keynes.[140]

However, findings do not entitle the assumption that the asymmetric/nondistributed type is *the* British model of domestic space configuration, not only due to the localised nature of these and other studies, but also because, in some of them, other recurrent spatial patterns have actually been revealed. Eighteenth century Banbury houses altered from an asymmetric/nondistributed model to a symmetric/distributed one, apparently

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[135] Idem, p.76

[136] A system is said to be asymmetric when one or more cells control access to other cells and distributedness is defined as *a relation with more than one locus of control*. Hillier&Hanson, 1984, op.cit.pp. 12 and 154.See also pp.11, 14 and 108.

[137] Hanson & Hillier, Tradition and Change in the English House, UAS-Bartlett, mimeo, 1979.p.20.

[138] Hanson&Hillier, op.cit.,1982, p.20-23.

[139] Ran, Ami. Domestic Space - Organisation and Use in The English Home, MSc Thesis, Bartlett, UCL, 1981, p.74.

[140] Hanson, 1992, op.cit. p.144.

accompanying changes in the region's social climate.[141] So did working-class terraced dwellings converted into middle-class homes.[142] Another study of North London dwellings, this time concerning apartment plans designed with the participation of residents,[143] showed the prevailing model to be a symmetric/nondistributed one.

Shiftings concerning relations of asymmetry and distributedness in domestic space systems appear then to be a powerful issue underlying socio-cultural changes. By measuring the asymmetry of a space in relation to all others in a complex, one is actually assessing how integrated that space is in the system. High asymmetry in a spatial network signifies low levels of integration, that is, of accessibility to and from that space. This may translate, for instance, a feeling of discrimination against certain activities or a desire of privacy, such as the one often referred as governing the logic behind the spatial arrangement of British house. Integration is then, as Hanson puts it, ... *one of the fundamental ways in which houses convey culture through their configuration.*[144]

3.2. **Observations**

It was decided, from the beginning, that given the scope of the sample under investigation and the deadlines of the present research, syntactic measurements would be restricted to those considered more powerful for achieving the aimed purpose at this global but fundamental level — that of identifying broad patterns of spatial configuration. Early explorations involving various syntactic measurements showed that the best results were produced by measures of integration, a fact that seems to find support in other pieces of research. Relations of distributedness shall be examined when plans are discussed individually but, for the time being, the study that follows will focus essentially on patterns of integration in British houses.

A case-by-case scrutiny of a representative number of plans shall be attempted

[141] Hanson&Hillier, op.cit.,1979, p.24.

[142] Hanson&Hillier, op.cit.,1982, p.20-23.

[143] Shoul, M. *The Spatial Arrangements of Ordinary English Houses* in Environment and Behaviour, vol.25, no.1, Jan.1993, p.55.

[144] Hanson J, 1992, op.cit.p.145.

in the next chapter. However, besides being of a workable size for the application of the desired analytical techniques, a representative subsample, if it is to be *representative* at all, has to reflect not only the basic features identified so far in the larger sample but also the vestiges by which cultural practices translate into space and these, as is strongly believed, lie hidden within patterns of spatial configuration underlying the layouts of the plans.

The analysis to be developed in the next pages attempts to unveil those vestiges at a global level, not only as a background for the study that follows, but principally with the purpose of investigating: 1) models of spatial integration in terms of the overall network of interior spaces; 2) how essential functions relate to this network and 3) the rules governing the way these functions articulate — the genotypes.

Initially, a general approach, deals with each plan as one structured complex of spaces. Possible correlations between more or less 'structuring' are investigated. The idea behind this preliminary approach is: 1) to find out whether a model or models of spatial configuration characterise the British house of the period and provided such models are identified; 2) if they relate to different social groups, and; 3) whether models and their social correlations alter in time.

The next step, as has happened in the previous chapter, focus on a minimum set of spaces designed to accommodate functions common to all households, so that by examining the pattern or patterns according to which these spaces relate to the system and to one another, the rules governing modes of social interface within the residential sphere can be unveiled. Findings are, again, examined across class and time.

3.2.1. **Measurements**

Each plan (seen as a spatial system linked by indoor accesses only) was translated into a set of dots and lines representing the spaces and their connections. As previously discussed, one dot was assigned for each room regardless of its geometrical form and for each lump of space connecting those rooms, according to bends and recesses. General procedures and restrictions adopted in the process were described in the item 1.4 of chapter 1.

The graphs resulting from the system of dots and lines — herein referred to as access or permeability graph — were translated into numerical measurements by the software application developed for the purpose at the UAS-Bartlett. **Figure 3** displays a plan dissected into a minimal living complex of interior spaces (as shown in figure 1), its resulting access graph, and the measure of asymmetry (RRA) of each space. RRA values are arrayed in ascendant order, (from more integrated to more segregated – less to more asymmetry) alongside the label of the space each value represents (or purpose, if label is not shown in the plan), and the number that identifies the space in the access graph.

The syntactic analysis in the present study deals chiefly with RRA (Real Relative Asymmetry) values. This measure enables comparison across systems which differ in number of spaces by eliminating the effect that size can have on the level of relative asymmetry values.[145] As already stated, the higher the asymmetry (or RRA value) the more segregated a space is in relation to all others within a network of connected spaces, the lower the RRA value, the more integrated that space is.

The measure of integration, by revealing the exact bearing of a joint in a spatial structure, a relation not easily perceivable from the plan itself, shows how accessible that space is meant to be, in other words, how desirable whatever goes on and whoever enacts it in a certain space is to come into contact with what goes on in the others or, how welcome the people likely to occupy one room are by the occupants of other rooms. The integration values of the cells within a system of domestic spaces are then accurate clues for the norms underpinning the ways in which the network of walls and doorways is constructed to halt, hinder or facilitate interaction among inhabitants, as well as between these and outsiders, and, therefore, for disclosing sociocultural content crystallised in space.

A high *mean* RRA value in a complex signifies high levels of asymmetry within the spatial network thus indicating that many spaces are segregated and, therefore, the access to them is highly controlled by other spaces which may, or

[145] Hillier&Hanson, 1984, op.cit.pp.109-111.

not, also be segregated from all others.

On the other hand, a wide range of differentiation in RRA values in a same system indicates that some spaces have easy access to and strong control over a number of segregated areas. The more structured a spatial network is the higher differentiation in integration values is expected to be found among its spaces. A measurement called BDF[146] (base difference factor), which compares a set of any three different values, can assess differentiation in integration within a complex by comparing the mean integration (mean RRA) of the system, the RRA value of its most integrated space (minimum RRA) and the RRA value of its most segregated space (maximum RRA). A system with no differentiation will equal 1. Lower values translate more differentiation.

The assumptions behind the articulation of the two syntactic measurements, RRA and BDF, can be summarised as follows:

1) High mean RRA and high BDF values characterise segregated and non-differentiated systems, here believed to translate networks in which most spaces are segregated from all others, in other words, where the mixing of people and activities is generally inhibited by the layout.

2) High mean RRA and low BDF values spell segregated but differentiated complexes and suggest that in these systems most spaces are segregated but with a few islands of well connected cells, a fact that may indicate privileged access and control of some spaces over the rest of the domestic complex.

3) Low mean RRA and low BDF values reverse the picture to one of a generally integrated system enclosing a few spots of highly segregated spaces. This configuration may translate discrimination against certain activities which are outcast from the general pattern of encouraged interaction.

4) Low mean RRA and high BDF values outline a network where integration is indiscriminately shared among most spaces. This mode of articulation suggests a pattern of little hierarchy and greater informality in which the interplay of actions and people is generally promoted.

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[146] The *base difference factor* is an entropy-based measure adapted from Shannon's *H*-measure for transition probabilities. See Hillier, Hanson and Grahan, 1987, op.cit.p.365.

Table 3 arrays the cases in the sample identified by their numbers and displays: year of publication; presumed association with a certain social layer, as identified in the previous chapter; minimum, maximum and average RRA values within the complex of interior spaces; BDF value; RRA value for each of the main day functions and the order (more integrated to more segregated) in which they rank.

Figure 3.1 compares mean RRA and BDF values for the whole sample. The R-squared of 0.191 and a significant probability value (p.=0.0001) indicate that the systems which present a large number of very integrated spaces (low mean RRA) tend to be more differentiated (low BDF) and those with a high average segregation (high mean RRA), less differentiated (high BDF).

Mean RRA values are correlated with the time (year of publication) and with a series of variables concerning the size of complexes in the sample in **figure 3.2**. Although statistically significant (p.= 0.0001), the week correlation between mean RRA and number of spaces (R-squared = 0.029) suggests that a large house does not necessarily have to be a complex of segregated spaces. Average RRA values correlate slightly better with time (R-squared 0.03, p.= 0.0001) showing a tendency for more integration in later houses. There seems to be no relation between integration levels and the number of function cells but that between the mean integration and the number of transition spaces is quite significant (R-squared = 0.09, p.=0.0001), showing that complexes presenting a more segmented circulation network tend to be more segregated. This seems to reflect directly in the relation between integration and number of storeys (R-squared = 0.174, p.=0.0001) since in higher houses there is an obvious need for extra transition routes — staircases and landings — for negotiating multiple floors. But the strongest correlation was found to be that regarding mean integration and the ratio between function and transition spaces (R-squared 0.248, p.=0.0001). it indicates that complexes in which the proportion of transition spaces is lower tend to be more integrated.

Figure 3.3 shows the correlation between the same set of variables examined above and the differentiation in levels of integration in the complexes. The variables presenting significant relations are: the number of transition spaces (R-squared 0.012, p.=0.0133), the number of storeys (R-squared = 0.016, p.=0.0047), both correlations being weak, and the proportion of transition to function spaces (R-squared 0.076, p.=0.0001), which is quite significant. Two outliers were disregarded in the observations involving the ratio of function to transition spaces. These are bungalows (houses 396 and 397) with a single transition space and six and seven function spaces, respectively.

The procedures developed above suggest that a highly segmented circulation network contributes to keep spaces well apart, as often stressed in the reviewed literature. Observations in the previous chapter have shown that the proportion of transition to function cells tend to reduce with time. This may relate with the inclination for more integrated complexes in later buildings and point towards lesser demands of privacy in British homes.

3.2.1.1. **Of social groups and structuring**

The next step was to compare the levels of average integration/differentiation in the complex of interior spaces among plans supposedly designed to house distinct social groups, as found in the previous chapter (**table 3.1**).

Plans expected to have been designed for the lower middle class (203 cases), present the highest average level of segregation (1.527 av. mean RRA) and the weakest differentiation (av. 0.836 BDF). Middle-of-the-social-road ones (170 cases) are the most integrated (1.475) and the most differentiated (0.826) and at the top of the social ladder (127 cases), houses supposedly inhabited from the well-to-do middle class upwards, feature in-between, being just a little more integrated (1.52) than those of the lower group and slightly more differentiated (0.833).

T-tests (one group, two-tail) indicate that the variation between the average mean RRA for the whole sample (1.508) and that for each social cluster is statistically relevant in the bottom group (p.= 0.0264), and specially in the middle one (p.= 0.0002), the former thus comprising complexes which are more segregating, on average, and the latter assembling more integrating ones. The variation between the average mean integration of the whole sample and the upper cluster was shown to be insignificant (p.= 0.1542).

Unpaired T-tests (x-y, two-tail) for variation among the average mean RRA values of upper, middle and lower middle class groups (1.52, 1.475 and 1.527 av.mean RRA, respectively) show that between the upper and the middle groups as well as between the former and the lower population (p. = 0.0785 and 0.772, respectively) the variation is neglectable whereas that between the middle middle class and the lower middle class cluster is quite significant (p.= 0.0027). The approximate levels of mean integration between the top and the bottom clusters look all the more striking because in the latter the proportion of transition spaces (1.6) is significantly (p.= 0.0126) less than in the former (1.4).

As far as differentiation in integration within the complexes go, middling plans were shown to be significantly (p.= 0.0005) more differentiated (0.826 BDF) than the average for the whole sample (0.832 BDF), and smaller ones (0.836 BDF) significantly less so (p.= 0.0204), whereas at the top end, (0.833 BDF) that difference is not significant (p.= 0.5606). The variation in mean BDF between the upper and both the middle and the lower populations is also irrelevant (p.0.1194 and 0.3683, resp.) whereas that between middle middle class and lower middle class complexes is, again, significant (p.= 0.0063).

It looks as if nineteenth and early twentieth century middle middle class houses, as represented in the sample, define a profile that sets them into a configuration niche of their own by assembling complexes which are more integrating and more differentiated than those of other social clusters, particularly the ones below their status boundaries.

The data is viewed for successive periods in **table 3.2**. Average values show a consistent shift towards more integrated complexes in time, a tendency already indicated by the negative correlation between mean RRA and year of publication (fig 3.2a). A slight move towards less differentiation is also suggested, however, tests indicate, this is statistically insignificant. Neither tendencies appear to follow a simultaneous move across distinct social clusters, though.

Nineteenth century upper dwellings are, on average, the most segregated

(1.568 av. mean RRA) and as differentiated as medium-sized ones (0.828 BDF) which present an average mean RRA value equal to that of small houses (1.541), these being slightly less differentiated (0.833) than those in the middle bracket.

The ratio between function and transition spaces is very low (1.2) among upper complexes, corroborating the idea that transitional segmentation goes along with segregation. However, the smaller proportion of transition spaces among lower middle class plans, as compared to middle middle class ones, does not appear to have contributed much to increase integration in their systems. Both groups show an equal average mean RRA value but quite diverse function/transition ratios, on average (1.5 and 1.3, respectively), although this variation is not statistically significant (p.= 0.922).

Figure 3.4 shows the correlation between mean RRA and BDF values across class and time. Perpendicular lines representing the average mean RRA (1.508) and the average BDF (0.832) values for the whole sample were drawn on the scattergrams to help visualise how complexes relate individually to the broad configuration tendency of the sample.

Most upper complexes tend to be either generally or discriminately segregated, that is, dots cluster mainly in the high mean RRA/high BDF and in the low mean RRA/low BDF quarters of the diagram. Among middling cases most dots cluster around the intersection of the average lines, suggesting a fairer balance between integrated and segregated spaces within these complexes, a situation roughly similar to that at the bottom of the social scale, except that here highly differentiated complexes are not found.

After 1893 upper dwellings (**tab.3.2b**) show no alteration in average mean RRA but less average differentiation (1.568 RRA, 0.835 BDF) and middle middle class ones tend to become more integrated and more differentiated (1.487 RRA, 0.826 BDF). At the lower rank, an increase in integration goes with a reduction in differentiation (1.535 RRA, 0.838 BDF), these complexes remaining thus as the least differentiated.

Upper and middling plans grow in size and height and small houses grow in size and shrink in height. Among larger plans, a less fragmented circulation system, as compared to the previous period, does not appear to help pull complexes more closely together, a fact that, although not statistically significant, casts again, a doubt on the notion that more transitional segmentation equals more segregation.

If the scattergrams in **figure 3.4a** and **b** are compared, it can be seen that the distribution of upper plan dots is not very different from that of the previous period, apart from the fact that they are now more numerous. On the other hand the integrating half of the middle middle class diagram looks a lot denser than the segregation half as well as than it did in the previous period. Small plan dots cluster more tightly around the intersection of the average lines.

During and immediately after the war upper middle and middle middle class cases are too few to stand comparison. Small houses continue to grow in size, do not alter in height, reduces the proportion of transition to function spaces, present the same average mean integration of the previous period and become slightly more differentiated (0.836 BDF).

After the war, however, the relationship integration/differentiation alters radically. All groups become more integrated but whereas the change in the lower middle class houses is weak (1.5 RRA), the push towards more integrated complexes is much stronger in middle-sized houses (1.433 RRA) and even more dramatically so at the top rank which shifts from the averagely most segregated complexes in earlier times, to the most integrated ones (1.424 RRA). T-tests (unpaired two-tail) indicate that the gain in integration is quite significant between upper prewar and postwar plans (p.=0.0073) and, specially, between middling plans published from 1843 to 1893 and their postwar counterparts (p.=0.0007) whereas the gain in integration in the lower cluster is irrelevant throughout the period.

The general move towards higher integration, however, does not necessarily correspond to more differentiation as might be expected. Smaller plans alter little in terms of both average integration and differentiation. Medium dwellings although gaining more integration maintain a level of differentiation practically unaltered (0.827 BDF) from what was found before the war (0.828

and 0.826 BDF). Upper complexes, however, become less differentiated (from 0.828 before 1894 to 0.84 after 1923). Thus, the strongest push towards less integration hierarchy in upper middle class houses goes along the strongest move towards average integration, an inverted tendency in most systems.

Upper and middle middle class houses shrink in size and height whereas at the bottom band, plans still present a slight growth in size. The function/transition-space ratio shows a reduction in the proportion of transition spaces in postwar larger dwellings as compared to turn-of-century ones and similar to that observed between these and earlier cases. As this later shift does seem to contribute towards more integrated complexes whereas the previous one does not, it is suggested, again, that the relationship between a less complex circulation network and higher levels of integration may be a relative one. This is incidentally emphasised by the fact that postwar larger houses are significantly (p.= 0.0329) more integrated than small ones but their variation in function/transition space ratio is not (p.= 0.4585).

Scattergrams show (**fig.3.4c**) that the dots representing upper middle class plans migrate from the segregating to the integrating and from the differentiated to the nondifferentiated halves of the graph quite radically. They also show that a highly integrated and highly differentiated model prevails among middling complexes and reveal a tendency for smaller plans to spread along the low mean RRA/BDF and high mean RRA/BDF quarters, similarly to what was found for prewar upper plans. This emphasises the existence of configurational similarities, among upper and lower middle class houses, as previously suggested.

If findings are to be trusted it looks as if whereas in postwar middling and smaller households a significant number of spaces will remain away from the mainstream of movement, among upper houses, segregated spaces may have become very few.

In order to assess the effects of geometrical restrictions imposed by the plot on the internal structuring of spaces, some of the procedures above were reworked according to the type of ground occupation for prewar and post war houses (**table 3.3**).

Figures suggest that the type of ground occupation does tend to encourage general segregation. Terraced houses show the highest average RRA as well as BDF values and detached ones the lowest for cases published until 1922 (**tab. 3.3a/b/c**). However, this is mainly due to the larger town houses which, not surprisingly, define the most segregated (1.884) and least differentiated networks (0.862). On the other hand, a terraced occupation does not imply a necessary increase in segregation levels since postwar lower middle class terraced (**tab. 3.3d**) complexes are significantly more integrated (1.491 RRA) than their semi-detached counterparts (1.547).

The question of the importance of the circulation network for defining integration looks a little clearer. It seems that the highly fragmented transition routes in upper town houses greatly affected the average integration values of prewar upper middle class cases. The relation between a small proportion of transition spaces and more integration appears stronger now but exceptions to the rule still suggest that less extreme levels of high transition segmentation than the ones found in large terraced houses may have little influence on enhancing segregation.

Nineteenth century upper and middling semi-detached cases, for instance, have very different average mean integration, yet the the same proportion of transition spaces (**tab.3.3a**); the same can be said about postwar small terraced houses, which are more integrated than semi-detached ones although these present a much smaller proportion of transition to function spaces (**tab.3.3d**).

The reduced number of postwar large and medium semi-detached (**table 3.3d**) and terraced houses do not allow comparison between these and prewar cases. The move towards more integrated systems that was verified for the sample as a whole, also holds when detached houses only are considered, except that now it can be seen that upper middle class plans, too, become more integrated already in the decades around the turning of the century although T-tests (unpaired, two-tail) indicate that the increase in integration is more significant between plans published before 1893 and postwar ones (p.= 0.0406 as opposed to p.= 0.0527 between nineteenth century and turn-of-century cases).

The almost disappearance of large terraced and semi-detached plans from the pages of the researched journals in later times is being taken as an indication that these spatial models no longer suited the requirements of the upper ranks, a circumstance that suggests a rejection of highly segregating complexes.

Figure 3.5 shows how RRA and BDF values correlate in the three social groups before (1843-1914) and after (1923-1930) the war. In the prewar period, there is a tendency for more integration to correlate with more differentiation in upper middle class houses, less so among middling houses and even less among smaller plans. The picture becomes inverted after the war with lower middle class houses presenting a significant correlation between integration and structuring and larger houses showing no correlation at all. This suggests that after 1923 the spatial configuration of small dwellings adopted a tendency (more integration equating with more differentiation) similar to that found in prewar larger households after this tendency had been given up within this latter group.

The picture outlined above is thought to demonstrate that the asymmetric/nondistributed model of a transition-space-centred system with dead-end rooms attached to it does not exhaust the profile of the British house in terms of spatial configuration but that subtle nuances set the homes of people of distinct social status apart.

Furthermore, the diachronic examination revealed that the logic behind the way spaces articulated to enable or prevent human contact in late nineteenth century and early twentieth century British homes was by no means one of stagnation but one undergoing constant restructuring which, albeit apparently moving in a same direction, adjusted differently according to the domestic requirements of diverse social groups.

The spatial configuration of the British house altered towards more integrated networks after World War I but this was neither shared equally by the homes of different social layers nor did it necessarily reflect more hierarchized home structures for all social groups, as expected, given the positive correlation between mean RRA and BDF values for the sample as a whole. In fact, what seems to have occurred is that whereas a preference for more integrated middling complexes was manifested as early as the turning-of-the-century decades, highly segregating upper middle class complexes (specially town houses) continued to be favoured until at least the war years. Besides, whereas in medium households, increased levels of accessibility in the systems did not imply in less structuring of their parts, in upper middle class homes renouncing segregation meant also renouncing hierarchy.

Among small dwellings, approximate average figures and a tendency for more integration to equate with more differentiation suggest the presence of common features between these and upper middle class houses. However, as has been seen, this tendency is manifested in different periods for the two groups, thus reflecting not a simultaneous likelihood but the adoption of a model after it had ceased to be favoured in its original context. On the other hand, the configurational development at the bottom rank embodies aspects related to both the upper and medium groups: small terraced dwellings become significantly more integrated (p.= 0.0328), on average, without renouncing much in terms of integration hierarchy, as is the case among middling dwellings, and small semi-detached houses which become more segregated and significantly less differentiated (p.= 0.0481) in later times, a model particularly common among prewar larger houses. These aspects appear to weaken the prospects of a case of social diffusionism, from top to bottom enclaves, and points towards the existence of a configuration model, or models, proper of lower middle class homes.

3.2.2. **Of most integrated functions**

In chapter 2 the principal day living rooms were sorted into reception- and service-related cells and room labels translated into the three basic functions *receiving*, *eating* and *cooking*, in order that different use behind common labels could be identified. This chapter focus again on these spaces, viewed as settings where the daily interaction among inhabitants — among family members and between these and servants, whenever applied — occurs, and where encounter between inhabitants and visitors were likely to have been staged.

Two spaces function as opposite poles for the inhabitants versus outsiders type of interface: the space used for **cooking** and the room designed chiefly for **receiving** visitors. In theory, the setting for **eating**, bridges the two domains, by being both an essential family space and the scenario for entertaining to a meal. However, as has been mentioned in textual references, the room designed for meals-taking may range from the locus of stately interaction between inhabitants and visitors, to a centre of family life, occasionally open to visitors, or perhaps it seems reasonable to suppose, not available to visitors at all, in some cases. It has also been associated with gender differentiation within the household, being referred by many authors as a male setting as opposed to the female-orientated drawing room. Although such issues can hardly be investigated at this general level, a first insight on the way those spaces articulate across class and time might let out some clues for further exploration.

A hurdle to sort out was the merging of functions in the same room. Although the great majority of houses in the sample did have a reception room, in a number of two-living room dwellings, eating was also carried out in this room as was inferred, for example, by the lack of spare space for a table in the other room where the sink and the main cooking apparatus were found. The functions eating and cooking were also amalgamated in a significant number of cases. In fact, one hundred and thirty-two (26.4% of the sample) dwellings had only one room exempt from any form of service related activity and sixteen had none. It was thus decided that amalgamated functions would be treated as having the same RRA value for the purpose of viewing the entire sample in a first uniform way.

An overview of how much accessibility was generally granted to the three basic day functions before and after 1914 was attempted and results compared across class. This was thought to be a necessary background for the identification of patterns of hierarchy among these functions which follows.

Table 3.4 displays the average RRA of the three chief day functions for the entire sample and for cases published before and after 1914. Eating is the most integrated function throughout the time span but whereas before the war eating (1.399 av.RRA) opposes cooking (1.524 av.RRA) as most integrated and most segregated activities, after 1914 the main contrast is between eating (1.300 av.RRA) and receiving (1.417 av.RRA). Another aspect revealed is that in earlier cases each function seems to define a proper configuration niche with a considerable gap keeping them apart in terms of average RRA values, but after 1914, eating and cooking (1.300 and 1.353 av.RRA, resp.) share practically a same integration level and this seems to be a consequence of much more accessibility granted to the latter function over time.

As this might have been an effect of more than one activity being amalgamated in a same space, the sample was sorted according to the most integrated function in each complex. **Table 3.5a** shows that three hundred and twenty-one cases are 'single-function-centred' whereas in one hundred and seventy-nine others, more than one function share top integrated position or no functional hierarchy exists at all.

The term 'single-function-centred' (between inverted commas) is being used to differentiate these from 'double-function-centred' cases, the former signifying complexes in which one key day function is more integrated than the others, the latter those systems in which two functions share top integrating position. It should not be mistaken with function-space-centred complexes, which designate spatial systems in which *the* most integrated space is a function cell.

Among 'single-function-centred' cases, both reception-centred and eating-centred clusters oppose the kitchen as the most segregated space and define neat gaps between each setting, in terms of average integration. In the former, average mean RRA values are 1.413 for receiving, 1.646 for eating and 1.749 for cooking, and in the latter group values are 1.500, 1.229 and 1.549, respectively. Cooking-centred cases oppose the setting for receiving (1.441 mean RRA) as the most segregated function but a wide gap in average RRA values also separates the two functions — cooking (1.173 mean RRA) and eating (1.411 mean RRA). This fact reveals a distinct configurational angle as compared to the relationship verified between eating and cooking for the sample as a whole, meaning that the proximity between eating and cooking in the whole sample was probably being biased by the number of cases in which these functions amalgamate.

In diachronic terms (**tab.3.5b/c**), it can be seen that eating-centred complexes define a similar average profile before and after 1914, with neat configuration gaps separating each function, the setting for receiving maintaining almost the same integration value (from 1.501 before, to 1.499, after 1914) and those used for eating and cooking becoming more integrated (from 1.258 to 1.204 and from 1.583 to 1.518 mean RRA, respectively).

In reception-centred cases all functions become much more integrated after 1914, with the setting for receiving shifting from an average 1.481 mean RRA to 1.318, that designed for eating from 1.716 to 1.548 and the space designed for cooking, falling from an average mean RRA of 1.868 before the war to 1.583 after 1914, thus approximating the levels of accessibility granted for the meals room.

In cooking-centred complexes the move towards more integration seems to follow an opposite direction in relation to that of reception-centred cases cooking and eating apart is widened with receiving changing from an average mean RRA value of 1.493 to 1.401, eating from 1.452 to 1.378 and cooking from 1.225 to.1.131.

Again, new aspects of the relationship between the space used for preparing meals and that designed for enjoying them are revealed. Cooking and eating activities are widely separated in configuration terms in prewar homes but after 1914 the syntactic position of the setting used for cooking alters according to distinct patterns: it may bunch together with the room where meals are served, both being withdrawn from the hub of movement (reception-centred cases), or keep well apart from it *and* from the interaction arena (eating-centres complexes) or, still, well apart from eating but constituting a focus of integration.

Table 3.6 displays the number of 'single-function-centred' cases for each social group. It can be seen that eating-centred complexes dominate among upper middle class dwellings before (48.6%) and after 1914 (44.7%). Prewar middling plans split chiefly between eating- and cooking-centred categories

(35.4% and 40%, respectively), the latter becoming overwhelmingly dominant (54.1%) after 1914. Prewar single-centred-function complexes are too few among small houses which become predominantly eating-centred (55.9%) after 1914.

Receiving-centred complexes are less numerous than the other two, specially after 1914, and tend to associate with upper (19.4% before and 15.8% after 1914) and middling (24.6% before and 19.7% after 1914) houses. They also assemble 14.7% of post-1914 small dwellings. Cooking-centred systems, although predominantly middle middle class, also embody a significant share of prewar (31.9%) and post-1914 (39.5%) upper plans as well as of lower middle class cases (29.4%) published after 1914.

The clear definition of configuration brackets for each function in eating-centred complexes points towards a demarcation of territories for the three communities of home users —visitors, family and servants or, maybe, visitors, family and women or, yet, visitors, family plus visitors and women (servants) — thus suggesting that the room designed for meals is perhaps an essentially family room. These complexes, which associate chiefly with prewar upper middle class houses (with 56.4% of all eating-centred cases published before 1914), become prevalent among small dwellings after 1914 (53.5% of all cases published after 1914).

Prewar reception-centred plans are also well compartmentalised in terms of niches of accessibility but after 1914 no significant gap separates the settings for eating and cooking, signalling perhaps a shift towards an opposition between a visitors-centred focus of interaction and a more withdrawn inhabitants' territory, comprising the spaces in which food is prepared and that where it is consumed.

Cooking-centred systems define a circuit which seems to set this space against a withdrawn family-plus-visitors milieu, judging from the gap in mean integration between the kitchen and the two reception rooms and from the syntactic proximity between these two. This may perhaps suggest a territory centred around the place used for cooking which opposes and reserves the other day rooms for family/guests interaction. Figures suffer no radical alteration after 1914.

However, as in both reception-centred and cooking-centred systems all functions become a lot more integrated after 1914, this appears to translate a tendency for less privacy and greater interplay between people and activities, a move which although apparently very strong among middling houses (since 42.9% of reception-centred and 48.5% of cooking-centred systems are found within this group after 1914), seems to be also quite evident among the other social clusters.

If the above assumptions are true it may perhaps be inferred that in upper middle class houses, as represented in this sample, the prevailing model throughout the time span is one in which the cell used for gatherings to meals is the locus of family interaction whereas the main reception room and that in which meals are prepared are set aside from the hub of daily contact. This model seems also to have been quite frequent among prewar middling households and, specially, among small dwellings after 1914.

Throughout the time span, the cooking-centred model, which prevails among middling complexes but is also found among upper homes, shows an opposition between an inhabitants-centred interface, spatialised around the act of cooking, and a withdrawn social sphere embodying the two reception rooms. Although all three principal day rooms become more integrated after 1914, as compared to their prewar counterparts, (from 1.493 to 1.401 for the main reception room; from 1.452 to 1.378 for the room used for meals; and from 1.225 to 1.131 for the kitchen) the configurational opposition between the main service room — as locus of inhabitants integration — and the main reception rooms is maintained. (**Table 3.5c**)

3.2.2.1. **Of functions and general configuration**

In order to assess a possible correlation between houses integrated around a given function and the overall pattern of spatial configuration, mean RRA and BDF values in the complexes were compared for each leading function, that is, for houses in which the focus of integration centres in one of the three functions. Complexes presenting more than one function sharing equal top integrating value were disregarded.

Table 3.7 shows that spatial networks in which the setting used for cooking is the most integrated basic day function present, by far, the highest average mean integration, being also the most differentiated, on average (1.407 RRA, 0.825 BDF). Those in which the main reception room is more integrated than the other two functions show the highest average mean RRA and BDF values (1.607 and 0.838, respectively), thus suggesting a theme of generalised segregation, and the systems integrated around the space used for eating rank in-between, in terms of both integration and differentiation (1.514 RRA, 0.829 BDF). T-tests indicate that the variance in integration between the average mean RRA for all 'single-function-centred' complexes and that of each cluster is significant as regards reception-centred (p.= 0.0001), these being more segregating, and cooking-centred (p.= 0.0001) complexes, more integrating. Reception-centred cases are also significantly (p.= 0.0001) less differentiated, in relation to the average for all groups.

Before the war (**tab.3.7b/c**), the theme of generalised segregation (1.678 RRA, 0.850 BDF), again, equates with complexes whose main integrated day function is the chief reception room, both measures contrasting significantly (p.= 0.0001 for RRA and BDF values) with the averages for the subsample of 'single-function-centred' cases. Again, cooking-centred systems are significantly more integrated (1.444 RRA, p.=0.001) than the subsample, on average, whereas the ones centred around the space used for eating rank in-between, being only slightly more integrated (1.527 RRA) but significantly more differentiated (0.824 BDF, p.=0.0178). Variance in integration among each 'single-function-centred' group is significant between reception-centred and both, eating-centred (0.0044) and cooking-centred (p.=0.0001) complexes and less so between eating-centred and cooking-centred cases (p.= 0.0303). Differentiation is also significantly less for reception-centred complexes in relation to the other two (p.= 0.0017 either) but not significant between eating- and cooking-centred cases.

Again, less fragmentation in the circulation network does not guarantee more integration. Reception-centred complexes are significantly more segregated than eating-centred ones, yet the proportion of transition to function spaces (rounded up in table 3.7) is practically the same for both clusters. The unpaired T-test (two-tail) for both values show a probability of 0.8115.

After 1914 there occurs a significant (p.= 0.0013) increase in the average mean integration for 'single-function-centred' complexes,.in general, as compared to prewar cases. Average mean RRA values are 1.507, 1.503 and 1.377 for reception-, eating-, and cooking-centred cases, respectively. Reception- and cooking-centred complexes become significantly more integrated (p.= 0.0043 and 0.0085, resp.) as compared to their categories before the war. The gain in average integration for eating-centred systems is, T-test indicates, irrelevant (p.= 0.4967). The increase in average differentiation for the two subsamples is neglectable (p.= 0.4783). So is that for each cluster but for the reception-centred group (p.=0.0009).

T-tests (one group, two-tail) also indicate that cooking-centred systems are significantly more integrated (p.= 0.0001) and reception-centred as well as eating-centred ones significantly (p.= 0.0001, both) more segregated than the average for the period. The variance between reception-centred complexes and the other two is only significant (unpaired T-test, two-tails) as regards cooking-centred cases (1.377 RRA, p.= 0.0001) which are also significantly (p.= 0.0001) more integrated than eating-centred ones (1.503 mean RRA). Differentiation among the three function groups in not significant.

The scattergrams in **figure 3.6** illustrate the above described findings. It can be seen that a number of dots migrate from the segregated/non-differentiated to the integrated half, and specially to the integrated/differentiated quarter of the diagram as the variable changes from the setting used for *receiving* to that for *eating* and to the one used for *cooking*, as focal points of interaction in the complexes. This is more evident among earlier cases. After 1914, dots representing reception- and eating-centred complexes tend to concentrate in the intersection point of the average lines whereas cooking-centred systems bunch in the integrated half.

The space designed for *cooking* presents the widest range of variation in RRA values among the three functions as can be seen in **figure 3.7**, particularly in prewar houses. On the other hand, the most stable range is shown to be that of main reception rooms. It thus appears that the alteration in hierarchy among main day functions over time, was chiefly due to changes in the syntactic position of the other two functions — specially cooking — in relation to main reception rooms and to the whole spatial network.

Although it has been strongly suggested that a larger proportion of transition cells contributes to but does not always increase segregation, it seems worth pointing out that cooking-centred complexes do tend to be more economical in terms of circulation spaces, judging from the data displayed in table 3.7.

The last observations stress the mutating character of the sample and demonstrates that rearrangements in the system associate with shifts in accessibility concerning the rooms used for eating and for cooking. This points towards a restructuring of domestic networks based upon the inhabitants' sphere which will become increasingly more accessible at the expense of the visitors' territory. A strong integrating property of the setting used for cooking which tends to pull the whole system closely together as it moves around the network, was also highlighted.

3.2.2 2 **Of functions and hierarchy**

If all cases are again viewed in a synchronic perspective and complexes which are not 'single-function-centred' reintroduced, all that can be inferred in terms of a global pattern of functional hierarchy underlying the entire sample is that complexes are centred in the space designed for meals (average RRA = 1.348). Although some differentiation between the average RRA value of the space used for cooking (1.437) — ranking next — and that of the main reception room (1.443) occur, this difference is neglectable (p.= 0.7071).

This apparent levelling of accessibility between reception- and cooking-related spaces is an effect of the radical alteration suffered by the setting designed for cooking in terms of general accessibility, over time. A brief examination of the way the three functions interrelate across class and time in the sample as a whole might prove useful as a background for the discussion of genotypical patterns of interaction that follows.

Table 3.8 displays mean RRA values of each function for the sample as a whole and according to the social group of potential occupants. As happens with the average values for the whole sample, neither in the upper nor in the medium category clear gaps define a proper niche for all three functions, in terms of average integration values, a fact certainly related to the configurational development of certain functions over time, as stated above. Among upper middle class cases there is no significant differentiation in the average RRA values between the spaces used for receiving and cooking and among middle middle class dwellings all differences are insignificant.

Among lower middle class dwellings, however, significant inequality gaps set the most integrated space (1.284 av. RRA) — used for eating — from that used for cooking (1.396, av.RRA, p.= 0.0001) and the latter from the main reception room (1.445 av.RRA, p.=0.0104). This pattern has been referred by Hillier and Hanson[147] as *an immensely powerful genotypical theme in English domestic space organisation* and said to *reappear under an enormous number of geometric and syntactic transformations.*

The sample was again split into four time periods in order to minimise the effect that changes in the configurational position of each function over time has for disguising functional differentiation viewed in a synchronic perspective.

With the sample split into social and time clusters (**table 3.9**) it was found that the *eating* more integrated than *cooking* more integrated than *receiving* theme is not the average tendency in any cluster before 1893 (**tab.3.9a**) and prevails only among lower middle class houses during turn-of-the-century decades (**tab.3.9b**) whereas that which ranks *eating* more integrated than *receiving* more integrated than *cooking* (eating > receiving > cooking), dominates the sample, on average terms, until 1914 (**tab.3.9a/b**), showing an inversion in the relative positions of the settings designed for receiving and cooking, as compared to the inequality expression considered particularly powerful by Hillier and Hanson. On the other hand, after 1923 (**tab.3.9d**), the eating > cooking > receiving trend becomes prevalent in upper as well as lower middle class homes whereas middling ones tend to be integrated around

[147] Hillier & Hanson, 1984, op.cit.p.155

the setting for cooking, as has been repeatedly indicated.

Findings therefore suggest that the studies that led to Hillier and Hanson's assumption regarding the importance of the eating > cooking > receiving pattern may have concentrated in postwar houses or in lower middle class plans designed from the last decade of the nineteenth century onwards. The trend also prevails among small complexes between 1915 and 1922 (**tab.3.9c**). The reduced number of upper and middle middle class dwellings published in the period hampers results regarding these groups.

Although the limitations involving findings based on average figures must not be overlooked, some strong trends appear to have emerged from the general procedures above. A tendency for integrating the domestic complex around the setting designed for eating signals a pervasive configuration trend among British dwellings throughout the time span. On the other hand, the replacement of this pattern for one centred around the setting used for cooking highlights the reconstruction of the spatial logic behind middle middle class complexes over time and a radical change in the role played by kitchens which migrate from the most segregated position among essential day functions into the limelight of domestic interaction.

The above results further emphasise the continuous process of restructure affecting the spatial configuration of British homes, accentuate the importance attributed to the Great War in this development and reveal that distinct trends underlie the way functions interconnect and link to the system as that process unfolds across social borders.

3.2.3. **Searching for genotypes**

It is believed that when a set of spaces that are used each for a distinct function present integration values in a certain numerical order and the same order of integration values can be found for spaces of equivalent use in a significant number of cases across a sample, an inequality genotype has been identified, and the researcher has every reason to suppose that a cultural pattern has been unveiled.

Therefore, before the examination of a representative sub-sample is carried out to illustrate and complement general issues, a final inspection of the full sample investigates the integration values of the spaces used for the three essential day functions and the order in which they rank in each of the five hundred cases that comprise the full body of data on British houses, so that prevailing genotypical trends can be identified.

The problem to be solved at this stage could be summarised in the following questions: 1) are there consistent genotypical themes in the sample?; 2) do they hold across class and time?; 3) do they relate to the broad configuration patterns identified so far?

The RRA values of the three functions (E for eating, C for cooking and R for receiving) can, hypothetically, be ordered into the following thirteen arrangements, herein also referred to as inequality expressions of integration or inequality genotypes:

1) R > E > C	7) E = R > C	and 13) E = R = C
2) R > C > E	8) R > E = C	
3) E > R > C	9) R = C > E	
4) E > C > R	10) E > R = C	
5) C > R > E	11) E = C > R	
6) C > E > R	12) C > E = R	

Table 3.10 displays the frequency distribution of the thirteen inequality expressions of integration. As far as the search for genotypes goes it seems relevant how certain expressions embody high percentages of the sample while others are practically nonexistent. Five inequality expressions alone assembles 11% or more cases each and constitute together 69.2% of the sample. It immediately strikes the observer how *receiving* and *cooking*, for instance, almost never have equal values in a same complex whereas *receiving* and *eating*, share the same values in a high proportion of the sample. The fact that this could be due to the overlapping of activities in the same room (contrarily to receiving and cooking which are functions not likely to occur in a same space) is not the answer because even if all plans in which these functions amalgamate in a same cell are disregarded, eating and

receiving are still the most (and equally) integrated set of spaces in 13.3% of cases and can also be found sharing the same RRA value in another 16.2%. On the other hand, eating and cooking occupying the same position in the order of integration, loses relevance (1.7%) when the overlapping of functions is discounted.

The room used for eating is the most integrated space in 26.6% of cases (38.4% with no overlapping), shares the most integrated position with the main reception room in 15.6% of cases (13.3% of cases with no amalgamation of functions) and with the space used for cooking in 12% of cases (1.7% of cases with no overlapping functions). These figures add up to over half (54.2%) of the entire sample thus confirming previous findings which have indicated that if a room can be generally considered as the focal point of the British household this will undoubtedly be the setting designed for eating. However, although the expressions E>R>C, E>C>R and E=R>C embody together a large slice (41.8%) of the sample, the presence of other strong genotypes, specially C>E=R and C=E>R, with an added up 27.4% of cases indicates that further scrutiny is required.

3.2.3.1. **Of genotypes and time**

Table 3.11 displays the frequency distribution of RRA inequality expressions for the four time periods which better reflected varying trends in terms of availability of functions, as identified in chapter 2.

Between 1843 and 1893 the spaces used for receiving and eating share top integrated value in 28% of cases, the setting for eating is individually the most integrated space in 22% of cases and the main reception room in 15%. Most integrated cooking cells account for 19% of cases and those in which eating and cooking (mainly by being amalgamated in one space) share the most integrated RRA value represent 12% of plans in the period. Therefore the importance attributed to reception rooms in earlier times can also be measured by their relevance in terms of spatial configuration. Reception cells being the centre of integration (either individually or together) add up to 65% of cases in the period.

In the following decades (1894-1914) although the expression E=R>C still constitutes the mode (17.4% of cases), the room where eating occurs takes over individually as the most integrating space with 27.8%. In 16.7% of cases the main reception room is the most integrated and in 23.6% the cell used for cooking is the most integrated. The main alterations from what was found for the previous decades are a larger number of plans in which there is a pattern of hierarchy between the chief reception rooms and the larger proportion of cooking-integrated complexes. This may have something to do with the importance attributed to service quarters during the period, as suggested by findings in chapter 2.

During and immediately after the war years the space designed for eating strengthens its position as main integrated space (32.4% of cases) whereas the percents of either receiving or cooking as the focus of integration decrease (13.9% and 12%, respectively) as does that of receiving and eating sharing equal-most integrated RRA values (10.2%). Eating and cooking sharing top position in the integration scale embody a much larger number of cases (19.4%). However, this is due to the massive concentration of small dwellings in which these functions amalgamate.

After 1923 the space designed for cooking takes over that used for eating as the focus of integration a fact that corroborates earlier findings. In 37.2% of cases cooking represents the most integrated function against 24.3% and a mere 8.7% of cases in which eating and receiving, respectively, constitute the centre of integration. Eating plus cooking-centred complexes also drops dramatically to 8.8% of cases.

The procedures above have contributed to clarify some broad configurational trends underlying the development of British homes over time. These seem to have shifted from a 'double-reception-centred model' to a dining-room-centred one and to a kitchen-centred system.

However, qualms about the possible fact that these findings might have been influenced by the bias towards the upper side of the social pyramid in earlier times recommended further investigation. It was thought that strong integration in the setting used for cooking was perhaps a prerogative of middling to small households (under represented before 1914) which by growing steadily in number of cases in the sample might be overloading results so that their specificities were being seen as general trends. The frequency distribution of inequality expressions was therefore checked across social clusters at successive time periods.

3.2.3.2. **Of genotypes, time and social groups**

Findings so far have indicated that the settings designed for receiving without a meal and for entertaining to a meal, formerly deserving equal emphasis as most integrated chief day rooms, become increasingly differentiated as the cell used for eating settles firmly as the focus of integration, in the turning of the century, to give way, after the war, to that used for cooking. This process develops largely at the expense of the main reception room which becomes more and more withdrawn from the hub of movement, a fact, also previously suggested as having to do less with change in the specific position of this room and more with a rearrangement of the other functions in the complex. In order to find out whether this pattern holds for all British houses the sample was again examined across social categories.

The answer is no. In nineteenth century upper middle class households (30 cases) although the functions eating and receiving share equal most integrated positions in 23.3% of the cases published before 1893 (**table 3.12**), dining-rooms are by far, the most integrated spaces comprising 40% of the category. The preeminence of this cell is strengthened in the turning of the century (44.2% of cases) and declines to around its former position (40.5%) after the war. The proportion of kitchen-integrated complexes grows steadily, moving from 23.3% to 30.7% before the war and to 35.1% after that. The number of houses where the main reception room is the most integrated space increases in the turning of the century (from 13.3 to 19.2%) as those in which dining and main reception rooms are indistinctly the most integrated functions loses all relevance (1.9%). After the war the two trends approximate in number (10.8% and 13.5%, respectively).

In middle middle class nineteenth century households (**table 3.13**), the cases in which there is no hierarchy between the most integrated reception rooms constitute the majority (29.7% of cases), followed closely by those in which the kitchen is the most integrated space (27%). Eating-integrated complexes also embody a significant (21.6%) lump of the sample and those in which the main reception room is the most integrated day function cell represent 18.9% of middling cases in the period. As reception- and double reception-integrated systems decrease slightly in number during the next two decades (15.2% and 28.8%, respectively), eating- and cooking-centred complexes become more numerous (25.4% and 27.1% respectively). After the war kitchens reign unchallenged (49%) as the focus of integration whereas the number of cases in which the cell used for eating is the most integrated decreases slightly (24.5%). Reception-centred cases fall to 11.3% and double reception-centred ones lose all significance (7.5%).

Due to the reduced number of upper (7 cases) and medium (15 cases) plans published between 1915 and 1922, the inequality expressions of integration were not discussed for these categories during that period.

The situation is a little more complicated at the bottom of the social scale (**table 3.14**) as in the overwhelming majority of cases more than one function overlap in the same space although between 1915 and 1922 (when the publishing of larger house plans drops radically) nearly half the contingent of small complexes present no overlapping functions.

Among small complexes it seems that eating constitutes an integration magnet until 1922 but that this property is taken over by cooking after then. In nineteenth century and prewar cases where one of the two living rooms is used for both receiving and eating and the other for cooking, the most integrated space is the former in 64.3% and 87.5%, respectively, against 14.3% and 12.5% in which cooking is the most integrated function; when one space is used for eating and cooking and the other for receiving, the former is the focus of integration in 78.6% and 71.4% of cases against 21.4% in which the reception room is more integrated for both time periods. The number of houses where there is no overlapping of functions is irrelevant in these periods (3 and 6 cases, respectively).

During and immediately after the war, the proportion of most integrated receiving-plus-eating rooms drops to 57.1% as that of cooking-centred cases increases to 21.4%. Among houses with no overlapping functions (over 45% of small dwellings in the period) eating-integrated plans dominate entirely with 76.9% of cases, thus confirming earlier findings. Eating-plus-cooking-centred cases represent 61.3% of plans in which these functions amalgamate, a drop compared to previous time periods mainly due, it seems, to the increase in number of cases with no hierarchy among chief day functions (22.7%). Reception-centred systems drops to 16.1%.

After the war, cooking takes over as the integration magnet, for in the houses where eating and receiving occur in one room and cooking in another the latter is more integrated in 75% of cases and where eating and cooking amalgamate in one room this is the most integrated space in 66.7% of cases. In the ten plans with no overlapping functions eating remains as the centre of integration.

It can therefore be concluded that although the move from a double reception-integrated system to a dining-centred and to a cooking-centred one does not hold in likewise fashion for each social enclave, a sort of shadow of this pattern underlies the development of the spatial configuration in the homes of all social clusters insofar as the proportion of most integrated reception rooms reduces and that of most integrated cooking spaces increases in all groups with time.

Furthermore if, as postulated before, receiving without a meal represents the realm of visitors, the place used for cooking, that of inhabitants and the one used for meals the link between the two, it may be inferred that *receiving plus eating* opposes *eating plus cooking* as the public and the private spheres within the domestic milieu. Hence, a gradual transference of focus from the social to the private arena has been verified in the whole of the British domestic scene, as represented in the present sample, albeit not in a synchronised pace across households of different social status.

If all cases in which either receiving or eating as most integrated functions (isolated or between the two) are added up and again, those in which eating and/or cooking (sole or sharing values) are also added, the drift from a social-centred to a private-centred complex can be represented numerically for each period and social groups. These figures are displayed for the whole sample (**tables 3.10/11**) and for each social cluster (**tables 3.12** through **3.14**) at the bottom of their respective charts.

Between 1843 and 1893 when an emphasis on the availability of multiple reception rooms as index of status was verified, it can be seen that the spaces used for those functions represent the focus of integration in the majority of cases. In the sample viewed as a whole the proportion of receiving/eating-centred complexes to eating/cooking ones is 65% to 53% before 1894; this relation levels to 61.8% against 61.1% in the next decades, tilts towards the inhabitants' territory between 1915 and 1922 (56.5% against 63.9%), and consolidates after 1923, when 42.6% of receiving and/or eating-centred complexes are overwhelmed by 70.3% of eating- and/or cooking-centred ones.

Among upper dwelling plans published before 1893 eating and/or receiving make up 76.7% of cases against 63.3% (77.4% and 61.3%, amalgamated cases included) in which eating and/or cooking occupy top position. These figures are inverted in the next decades with eating and/or receiving embodying 65.4% of cases against 76.9% of eating- and/or cooking-integrated ones ...This proportion remains roughly the same (64.9% and 75.7%) after 1923. It can therefore be concluded that, within this enclave, the leap from public to private occurs as early as the turning of the century mainly due to a radical drop in the frequency of equally most integrated drawing and dining rooms and to the strengthening of both the dining-centred and the kitchen-centred models. Although the proportion of most integrated main reception rooms increases, the spatial restructure affects indirectly but quite strongly these spaces which become the most segregated day function in 30.8% of cases against 16.7% before 1894.

Within middling households the proportion of social-centred to private-centred systems remain roughly unaltered until the war (70.3% against 51.3% before 1894, and 69.5% against 55.9% in the next decades) and become inverted (45.3% against 73.6%) after 1923. Not only does the preference for a double-reception-centred model appears to have lasted much longer within this social group than it did in the upper sector, but a quite distinct tendency is shown to have prevailed when that model was finally dropped after the war. When the drawing/dining-centred model was rejected in the upper middle class, preferences split among dining-centred, kitchen-centred and, to a lesser extent, also reception-centred systems. Conversely, when that model declined among middling complexes favour seems to have fallen heavily on the kitchen-centred model. Thus, whereas the setting for cooking takes over entirely as the most integrating space in the largest slice of middle middle class houses after the war, kitchen-centred networks, although becoming increasingly more frequent among upper households, never actually constitute the dominating trend which remains being the dining-centred model throughout the studied period.

Among smaller households the shift from public to private gathers momentum from 1915 onwards and completes after the war when eating- and cooking-centred complexes comprise together 64.1%, a number particularly relevant given the proportion (26.4%) of cases presenting no functional inequality. A tendency for keeping the main reception room as far away as possible from the hub of movement seems also evident due to the high proportion of most segregated reception rooms which accounts for 50.9% of post-1923 cases.

3.2.3.3. **Capturing genotypes**

The analysis above has demonstrated that distinct hierarchical trends among main day functions prevail in dwellings of different status at certain periods of time. **Tables 3.15** through **3.18** relate each genotype to basic general and syntactic data across social categories and time.

Average mean RRA values range from 1.355 to 1.940, indicating strong diversity in terms of global configuration among genotypes although in most categories average mean RRA values range from 1.4 to 1.609, thus close to the average (1.508) of the entire sample. Average measures of differentiation for the various genotypes range from 0.807 to 0.860 (the mean for the full sample being 0.832) which also suggest that tendencies for more or less hierarchy associate with certain patterns although, again, most genotypical groups are contained in the bracket between 0.82 and 0.848. **Figures 3.8** through **3.11** display the correlation between the two measurements for each genotype according to its respective category.

Graphs were again divided into four quadrants limited by perpendicular lines traced from the point 1.5 (approx. av. mean RRA of the sample) and from the point 0.83 on the y-axis (aprox. av. BDF), so that the relationship between the two measurements and the movement of dots representing dominant genotypes in each social category may be easily visualised.

3.2.3.3.1. **Nineteenth century**

Among upper nineteenth century complexes a pervasive tendency for integrating the principal day living rooms around the dining room or around both reception rooms generates the mainstream genotypes, that account for 58% of upper cases published in the period, 32.2% of which eating-centred/cooking-segregated (E>R>C), and 25.8%, double-reception-centred (E=R>C). The figures on **table 3.15** suggest that the former, with a generally high average number of spaces (42.1), storeys (3.2), reception rooms (3.3), service rooms (3) and bedrooms (7), constitutes some of the wealthiest households in the period, whereas the latter represents homes a step below in the social ladder, being closer, in number of spaces (33.2) and availability of reception (2.7) and service rooms (2.6), to the top instances of the next category. E=R>C genotypes tend to have more storeys (av. 3.4) and to configure highly asymmetric systems (1.691) although their average ratio of function to transition spaces (1.4) is higher than that in E>R>C types (av. 1.2), one of the lowest in the sample.

Among middle middle class plans, the E=R>C model shows higher averages as concerns availability of spaces (28.2) and function rooms (12.7) indicating that this pattern associates better with complexes a step above those of the C>E=R genotype in the category. The latter presents high levels of integration (1.471, av.mean RRA), fairly low differentiation (.835 av.BDF) and a reduced proportion of transition spaces (av. 1.6), thus confirming previous findings that have suggested kitchen-centred complexes to configure systems closely interconnected.

Houses in which cooking and eating amalgamate in the same space comprise 34.4% of small plans and their mean figures are suggestive of slightly more abundance of spaces (11.9 total, 5.9, functional) than those where one room functions as a setting for both receiving and eating (11.1 total, 4.8, functional), the former being also more integrated (1.495 av. mean RRA) and less segmented in terms of transition spaces (av. 1.4) than the latter (1.575 av. mean RRA, av. func./trans.= 1.3)

Graphs (**fig. 3.8**) show the correlation between mean RRA and BDF for the prevailing genotypes in the period. The dots representing lower middle class E/C>R and middling C>E=R genotypes tend to bunch around the intersection point of the average lines, suggesting that in these complexes a balance between integrated and segregated spaces is the norm. Most upper plans of the E=R>C genotype cluster in the segregated/nondifferentiated quarter of the graph. Upper E>R>C cases and middling E=R>C cases (as well as, to a lesser extend, lower E/R>C types) spread more or less deeply into the differentially integrated and the generally segregated quadrants, suggesting that among these systems the choice is basically between generalised and discriminate segregation.

3.2.3.3.2. **Turning the century**

In the decades before World War I the E>R>C pattern loses some relevance, falling from 32.2% to 21.1% of cases among upper households (**table 3.16**), and apparently concentrating in a very exclusive cluster, given its high average number of spaces (av. 49.1 total and 21.5 function spaces) and, specially, of service rooms (3.9), at a period when, as has been seen, abundance of service-related cells equates directly with the top sectors of the society. The proportion of terraced houses among this group is one of the highest in the sample (54.5%).

R>E>C types embody the largest complexes of all genotypes (av. 50.9 total and 21.9 function spaces), figures suggest, and associate chiefly with large town houses which, although being very few in the sample, constitute the overwhelming majority (70%) within this genotypical category. Both the E>R>C and the R>E>C models configure very asymmetric complexes (1.607 and 1.940 av.mean RRA, respectively), the latter constituting extreme examples of generalised segregation and transitional fragmentation (av. func./trans.=1).

A new trend, the E>C>R pattern, rises from virtual irrelevance in the previous period to the most frequent genotype, remaining as such within this category from then on and corroborating earlier findings which had pointed towards this pattern as very strong among large and small complexes from the turning of the century onwards. Comprising 23.1% of the 52 cases published between 1894 and 1914, the houses in which the setting for entertaining to a meal opposes diametrically that used for other types of reception, define a low profile in terms of upper middle class residences in the period, with the lowest average number of spaces (39.2 total and 19.1 function spaces), bedrooms (6.5) and service rooms (3.5) despite a quite generous offer of reception rooms (3.4). They are also the most integrated (.mean RRA = 1.428) and most differentiated complexes (0.82 BDF), on average, within its category in the period and present the lowest proportion of transition spaces (av.1.5).

In the years around the turning of the century the presence of the E>R>C genotype, which appears to have lost some grounds in the upper ranks, becomes fairly frequent among medium-sized houses. With the highest mean number of spaces (29.3), of service rooms (2.5) and of bedrooms (5.6) in the category at the period, they define a profile perhaps just a cut above the other models. The other two genotypes found for the central category — E=R>C and C>E=R — seem to be in all things similar to one another, in terms of average availability of spaces (both 24.9 total spaces, 11.9 and 12.5 function cells, respectively) and principal functions, having an approximate average 2.2 reception and service rooms and around 5 bedrooms. Again the most integrated complexes, on average, are kitchen-integrated ones (1.448 mean RRA).

Among small dwellings, as had happened in the previous period, E/C>R types configure larger complexes than E/R>C cases, in terms of average number of spaces (14.9 against 12.1) and functions (7.4 against 4.9). Corroborating earlier results that indicated a tendency towards segregating systems in small houses, specially in reception-centred ones, E/R>C cases configure highly asymmetric complexes (1.668 av. mean RRA).

Not surprisingly, the ten R>E>C cases are the champions of indiscriminate segregation in the sample (**fig.3.9**). Segregation seems also to have been favoured among E/R>C houses, again pointing towards the existence of common configuration grounds between upper and lower sectors. Low differentiation characterises upper E>R>C plans which split between generally segregated or generally integrated complexes, an unprecedented trend so far. A choice between indiscriminate and discriminate segregation is suggested among E=R>C middling complexes, the latter tendency being also fairly frequent among upper E>C>R cases. Again C>E=R and E/C>R cases show a more or less balanced relationship between integration and differentiation and so do middling E>R>C genotypes.

3.2.3.3.3. **Wartime**

The E/R>C genotype declines after 1914 (**table 3.17**) and small dwellings become chiefly organised around the living room which doubles as kitchen and dining room or, in the cases where each basic function is allocated a separate space, around the room where meals are taken. Both types define one almost equal profile as far as availability of spaces and functions go (approx. av. of 14.8 total and 7.5 function spaces) and living-kitchen-centred ones are, again, more integrated (av.mean RRA = 1.591) than E>C>R ones (av.mean RRA = 1.609). In any case, the layouts defined by both systems seem to encourage generalised segregation (**fig.3.10**), a pattern repeatedly suggested by previous explorations on configuration trends among small dwellings.

3.2.3.3.4. **Post-war**

After 1923 (**table 3.18**) the E>C>R genotype dominates among upper complexes and assembles cases just a bit larger (av. total spaces = 38.5, funct.=19.2) than C>E>R types (av. total spaces = 36.6, funct.=17.5), a novel prevailing pattern among the upper cluster, but still quite reduced in number of cases. Again these kitchen-integrated complexes appear to pull the whole spatial system together (av. mean RRA = 1.365).

The C>E=R model takes over completely among middling complexes, where they represent more than 36% of cases. These define very average mean figures as compared to those for the period in the whole sample (av. total spaces = 21.4, funct.=10.6), being also more integrated (av. mean RRA = 1.4), than non-genotypical cases (av.mean RRA = 1.452).

This pattern also plays an important role among smaller plans in its C>E/R version that accounts for 24.6% of small post-1923 plans. Its average figures (av. total spaces = 15.2, funct.=7.1) approximate those of the recurrent E=C>R genotype (av. total spaces = 14.8, funct.=7.7), which appears in non-amalgamated cases as well as in E/C>R ones. These tend to constitute complexes larger than those which present no inequality among chief functions (av. total spaces = 13.9, funct.=6.6), either because all activities concentrate in one room (R/E/C) or because the two rooms (R = E/C), one for receiving the other for general living, relate equally to the system. Not surprisingly C>E/R cases are, once, again more integrated (av.mean RRA = 1.355) than the other two (1.556 and 1.497).

All graphs (**fig.3.11**) present a visible migration of dots from the segregating to the integrating half of the scattergrams after the war. A move upwards, towards less differentiated complexes also occurs but, as stated in the item 3.2 of the present chapter, this move has diverse nuances for distinct social categories.

Among upper households both patterns (E>C>R and C>E>R) show dots concentrating in the top left corner of the graphs, a picture that characterises spaces generally integrating and very loosely hierarchized and suggests encouraged interaction among activities and people within the household, thus confirming earlier findings. As in both types the least integrating space is the main reception room it can be inferred that their locus of encounter evolves around the family domain at the expense of outsiders.

Middling C>E=R cases also cluster densely in the integrating band of the scattergram but here, as can be seen, integration goes with more or less differentiation. A tendency for integration and differentiation in postwar middle middle class homes has also been suggested earlier on. Such layouts are organised, it seems, to promote contact in most areas but to leave some spaces in quite strong isolation.

What has just been said applies to smaller households of similar genotype (C>E/R) except that here the tendency for discriminate segregation appears to be stronger. Among E=C>R and R=E/C cases, low differentiation and split tendencies for integration or segregation relate these cases to turn-of-century upper E>R>C complexes, again confirming common configurational features at the top and lower bottom of the social spectrum.

Transition networks tend to shrink with time across the whole sample and although this contributes towards general integration there does not seem to be a necessary unfailing relation between the reduction of the circulation system and that of asymmetry. The latest observations further highlight the point. For instance, earlier upper E=R>C types configure much more segregated complexes (av.mean RRA = 1.691) than their E>R>C counterparts (av.mean RRA = 1.509) and yet present a smaller proportion of transition spaces (av. funct./trans. = 1.4 against 1.2). The same applies to wartime E>C>R and E/C=R types, the former being significantly more asymmetric (av.mean RRA = 1.609) than the latter (av.mean RRA = 1.591) and having slightly less transition spaces (av. funct./trans. = 1.6 against 1.5) and, again, to postwar upper E>C>R (av.mean RRA = 1.416) and C>E>R (av.mean RRA = 1.365) genotypes (av. funct./trans. = 1.6 against 1.5, respectively). This fact is particularly evident among postwar lower C>E/R (av.mean RRA = 1.355) cases which are the most integrated systems in this social cluster, (av.mean RRA = 1.556 and 1.497 for E=C>R and R=E/C cases, resp.) yet present the largest proportion of transition spaces (av. funct./trans. = 1.6 against 1.9 for the others).

However, it seems quite clear that, on the whole, reception-integrated complexes associate with more segmented circulation systems and more segregating complexes and that cooking-centred ones with more compact transition networks and more integrating spatial complexes. This is stressed by the fact that eating-centred/cooking-segregated plans tend to have a larger proportion of transition spaces than eating-centred/reception-segregated ones.

As kitchen-integrated complexes have consistently correlated with low levels of asymmetry across time, class and genotypical variations, it looks as if circulation networks tend to shrink most specifically in their links with the main service room. The summing up of the considerations above further emphasise the notion, repeatedly stated, that the ways in which certain functions link to the circulation system are the real crucial factor to determine distinct levels of accessibility in British homes.

3.3. **An overview of British homes**

All that has been said about nineteenth and early twentieth century British homes has been based largely on average figures. Besides being the best numerical resource for the mathematics (and statistics) illiterate, this most basic of measurements is believed to be a powerful tool for detecting broad trends in an extensive sample. Although numerical analysis based on average figures (and on averages of averages) may hide differences and distort results, such perils can be greatly reduced if the data is approached through varying angles, a precaution that was certainly taken in the handling of the present sample. The consistency with which most patterns stood examination under diverse approaches tells, it is trusted, that the picture outlined here is not very far from what constituted the majority of actual domestic structures in Britain at the time.

Observations indicated that three configurational themes prevail before 1922: 1) a choice between generalised or 2) discriminate segregation and 3) a model in which most spaces are fairly distributed half-way between the integrative and segregative poles.

The first theme, that translates highly asymmetric/nondifferentiated systems, is suggestive of houses in which most activities and their actors are severed from one another. This tendency dominates among upper reception/dining-integrated/kitchen-segregated (R>E>C and E>R>C) cases as well as in double-reception-centred ones (E=R>C). It can also be found in some middling double-reception-integrated cases and in small cooking-segregated (E/R>C and E=R>C) dwellings.

Integrated/differentiated complexes, those in which most spaces are fairly accessible but some are deprived of this quality, finds adepts among upper dining-centred cases in both kitchen- and reception-segregated versions and in medium double-reception-centred houses.

On the other hand, most middle middle class cooking-centred/reception-segregated plans as well as their lower middle class counterparts (E/C>R) tend to configure well balanced systems which are neither particularly integrating nor segregating and where differentiation is mild.

The above panorama emphasises patterns detected in the examination of 'single-functions-centred' systems when it was noted that reception-integrated complexes tend to equate with higher levels of segregation and cooking-centred ones with more integrated complexes whereas eating-centred plans stood half-way along the line.

This trend is further emphasised by the radical shift towards integrating complexes verified after 1923 when all but one prevailing genotype is reception-segregated. The overwhelming preference for more integrating complexes in later times, underlay all syntactic observations from the very outset as did the idea that this move was particularly strong among postwar upper middle class complexes in which spaces not only became more accessible but this increase in accessibility was spread throughout the system, a fact that appears fully confirmed by the last observations.

A tendency for high levels of segregation to remain entrenched almost solely among small dwellings is another aspect revealed by the examination of prevailing genotypes (E=C>R and R=E/C), which had long been suggested, as had the propensity for postwar middling houses to become integrating and cooking-centred but to maintain a strong level of differentiation in their complexes, as verified in a number of C>E=R cases, not to mention the strong indications that layouts travelled from reception-centred to eating-centred and to cooking-centred systems, over time.

Thus, provided that average figures did not conjure up a smudge pot of false appearances, it can be inferred that from mid-nineteenth century to the inter-war years the British home developed from a system centred around the family/visitors sphere to one focused in the inhabitants domain and from a complex orientated towards great and generalised privacy to one articulating areas of fairly intense interaction with pockets of isolated spaces and, later, to a third model, in which general interaction appears to be the theme.

It has also been seen that whereas the move towards more integration was initiated and maintained by middling complexes, the adoption of a generally integrated and little differentiated model is a theme chiefly associated with postwar upper residences, whereas at the bottom of the social pyramid a balance between accessibility and seclusion spans the period, although segregation (generalised or otherwise) remains a powerful theme, even after the war.

Those trends could only be identified by continuous reassessments of the data. For instance, when the sample was viewed in synchronic terms, middling complexes appeared to be much more integrating than upper middle class ones. However, when a diachronic approach was attempted, it was verified that the main factor for that difference associated with what appears to have been a long lingering taste for hugely asymmetric systems, particularly for tall terraced reception-centred houses in the latter group. After 1923 this situation becomes inverted with upper middle class plans tending to configure generally integrated complexes.

The recognition of the need for an exhaustive reevaluation of some aspects of the data highlights the propriety of handling extensive samples when little is known about an object or when what is known, however vast references may be, does not meet the needs for solving a particular problem.

Less easy to tackle was the issue concerning the extent to which high transition segmentation affects general accessibility, a kernel theme in the literature. It has been seen that the move towards more integrating complexes associates strongly with less segmented circulation networks but repeated scrutiny of this relationship, as manifested in different categories, led to the conclusion that the way in which rooms are attached to transition segments is perhaps more effective for granting varying levels of accessibility, general and functional, than adjustments in the size of the circulation system, provided, of course, that this does not constitute extremely large or very reduced networks. This seems to be stressed by the increasingly segregated position of main reception rooms coupled with a very stable range in their integration values, what suggests alteration to have been caused by the way the spaces designed for eating and, specially, for cooking moved around the transition core. Besides altering the relative configurational position of the main reception room this appears to have played a key role in the process of transference from a segregating/social-centred complex to an integrating/private-centred one.

Diachronic observations also indicated that this process was triggered in the upper sector, as early as the turning of the century, with the transference of the locus of functional integration from a drawing-plus-dining room arena to the dining room or, in a lesser extent, to the kitchen. The movement is emphasised by a larger proportion (as compared to previous decades) of dining-centred cases in which kitchens swap places with the main reception room which becomes the most segregated day room. Although the double-reception-centred model is also given up in middle middle class homes, this will not occur until after the war. Furthermore, in this group the downfall of that theme does not lead to the adoption of dining-centred systems, as happens in the upper ranks, but, overwhelmingly, to that of kitchen-centred ones. This echoes at the bottom of the social rank, where kitchen/living-centred complexes, which had always been fairly frequent, became dominant.

Some of the findings summarised above are submitted to further investigation on a case-by-case basis in the next chapter. Configurational and functional issues shall be reexamined in terms of each minimal living complex — interior spaces articulated by indoor links — and of the ways in which it relates to the exterior.

Since the ultimate aim of the present work is to identify features which might have been reproduced in the homes of British residents in Recife, where that presence was more strongly felt from mid-nineteenth century to the Great War, the cases selected for further scrutiny concentrate in the prewar period. By the same token, as those residents — mainly traders, engineers, clerical and skilled workers — were unlikely to have been the occupants of dwellings thought to associate with the extremes of the social ladder, the subsample was selected from cases ranging from less grand instances of upper dwellings, to larger complexes within the bottom group.

Table 3.19 presents the genotypes selected for individual observation. They predominate in 70.5% of prewar cases and average figures show them to associate strongly with middling complexes albeit being slightly tipped towards the upper band. Despite not being central to the purposes of this thesis, a small subsample of plans published after 1914 will also be examined, following an interest to verify how some of the findings discussed above unfolds in individual cases. Selected wartime and postwar genotypes constitute 44.9% of all post-1914 published plans and are slightly tilted towards the lower housing sector which predominated in the full sample at the time.

A strong positioning against selective sampling was manifested in chapter 1. However, a clear distinction is thought to exist between conclusions drawn from selected data and a sample selected according to findings that emerged from a data built in the intention of avoiding choice as much as possible. The plans set aside for individual scrutiny are thus intended to illustrate and complement patterns identified in the whole data at a level of detail that could not have been applied to five hundred plans. Some key points to be raised are: 1) the ways in which rooms connect to the transition network and how these affect the general integration of complexes; 2) how main day functions relate to the complex and to one another in terms of accessibility and; 3) whether this relation offers some clue about the definition of spatial boundaries for distinct communities of home users; 4) how the links to the exterior affect the complex as a whole and the issues raised in items 2 and 3.

CHAPTER 4

STILL THE BRITISH

The present chapter investigates the spatial configuration of a sub-sample of British houses on a case-by-case basis. It aims to explore aspects identified in the whole sample at a level of detail not practical to be attained in a large body of data. This includes the analysis of the ways in which the network of interior spaces relates to the exterior, both in an inhabitants' and in a visitors' perspective.

The plans that constitute the core material for this phase of the study were selected from the full British sample and reflect features prevailing in the homes of middling social enclaves, as discussed in chapters 2 and 3, in terms of layout but also of the rules according to which basic functions relate to one another and to the spatial system that comprehend them. Since such rules, it is strongly believed, regulate the patterns of encounter and avoidance among inhabitants and between these and visitors to enable the spatial realisation of sociocultural modes of domestic behaviour, they would be expected to reappear, at least partially, in post-colonial houses of Recife had there been an episode of cultural change in household relations brought about by the presence of British residents in the town.

Therefore, the study that follows adds finishing touches to the assessment of British domestic complexes and sets the background for comparing these to findings resulting from the analysis of colonial and post-colonial houses in Recife, to be developed in the next chapters, thus enabling final conclusions to be drawn.

4.1. <u>The prewar sub-sample</u>

The sample comprises twenty-five plans published from mid-nineteenth century to World War I. These plans are organised according to the inequality expressions more frequent among middle-of-the-social-road dwellings: the genotypes found to have prevailed among middle middle class complexes — E=R>C, C>E=R and E>R>C cases; those associated with less opulent instances of upper middle class houses — E=R>C, and E>C>R cases; and the genotype prevailing in larger complexes within the lower middle class category — E/C>R cases.

The idea was, obviously, to gather a subsample as representative of ordinary middle middle class British dwellings as possible. Some limitations added extra restrictions to the selection: many drawings in the journals were restricted to the buildings themselves with no indication of how they located in the plot, and therefore giving no clues as to the links with the public space, an issue that seemed important to investigate. This lack of information reduced greatly the scope of selectable plans. Once availability of information in the drawings, time of publication and inequality expression of integration among main functions had been sorted out, the number of cases representing some genotypes was so reduced that the term 'selection' hardly applies to their choice. Others, however, most specially E=R>C cases, included a large amount of selectable examples. These were chosen, on a more or less random basis, guided chiefly by the intention of assembling the widest possible variety of plans as respects purpose of design — commission, competition, etc. — , shape, size and building location, when applied, of the plans.

The final selection thus covers a fairly ample spectre of the domestic architectural production of the period that includes: erected, to be erected and never meant to be erected plans; anonymous designs, for competition purposes and creations by fashionable architects; commissions by philanthropic organisations and by estate owners; non-identified or unknown prospective residents and plans specially designed for workmen, doctors, architects, clergymen; country and town dwellings; locations as apart as Wales, Brighton and, of course, London; ordinary suburbs and garden suburbs; shapes ranging from simple square layouts to a 'butterfly' conception.

The plans are identified in **table 4** by source and date of publication, social status as defined in chapter 3, type of ground occupation, and additional information collected from the researched journals.

4.2. <u>Analytical procedures</u>

Again, the analysis was based on integration measurements. General spatial features and syntactic measures of asymmetry (mean RRA) and differentiation (BDF) as well as the integration value of the three principal day functions had already been calculated for the network of interior spaces. Access graphs were reworked to include exterior spaces and functional differentiation (BDF value among the three chief day functions) calculated for the minimal living complex with and without carrier (see items 1 and 3 below).

Measurements refer thus to three distinct complexes: 1) the minimal living, as examined in previous chapters; 2) the minimal living plus public space; and 3) the minimal living plus carrier. These procedures aim at investigating diverse permeability routes that translate different ways of accessing the building and associate with distinct groups of users. Such pathways may be defined as follows:

1 The routes experienced daily by the **inhabitants**, that is, the complex investigated for the sample as a whole: all interior spaces connected by indoor links only (*minimal living complex*);

2 Routes associated with the interface between **inhabitants and visitors** accessing the complex by the front door. The network of interior spaces is linked to the street (considered as one space) by all intermediate lumps of space between the two, via the front door (*minimal living plus public space*). All other accesses into the minimal living complex are disregarded.

3 **Inhabitants extended complex**, that is all alternative routes open to inhabitants as well as, sometimes, to informal visitors. One single space representing the exterior is linked to the network of interior spaces by any doorway opening to the outside (*minimal living plus a carrier*). The house exterior is always viewed as if connecting to the public outer space (not included), that is, as if one could always go round the building or round the

block and reenter the complex by any of its exterior doorways. .
Table 4.1a displays some basic general and syntactic data for all complexes. **Table 4.1b** shows the same data (and sub-totals) for each cluster of plans according to distinct genotypes. **Tables 4.2a** shows the integration values of key function spaces (plus that of the scullery) for each complex and the differentiation factor among the settings of receiving, eating and cooking for the minimal living system with and without carrier. **Tables 4.2b** displays the same data for each genotype cluster. **Table 4.3** presents every interior space according to its RRA value (for the minimal living complex), from more integrated to less integrated. The cases in all tables are arrayed (in crescent order) according to their number of interior spaces. **Figures 4.1** through **4.13** show the plans and their respective permeability graphs rooted from the public space and reworked to include alternative routes through the carrier. Their presentation follows the order in which they are discussed. **Figure 4.14** arrays all permeability graphs (in crescent order, according to their number of interior spaces) and **figure 4.15** displays the same data reworked for the carrier.

The discussion of individual cases proceeds according to the inequality expressions relating chief day functions in terms of the minimal living complex, from most frequent to less frequent. The reader should therefore refer to figures 4.1 through 4.13 for plans and permeability graphs. These graphs will reappear in figures 4.14 and 4.15, as stated, arrayed according to the size of each complex, for an economical global visualisation.

4.3. <u>A syntactic overview</u>

If figures (**table 4.1a**) for the selected sample are compared to those for the full sample (bottom of the table), it can be seen that the mean number of spaces among selected houses (28.4 total, 14 functional and 9.6 transitional) is just above that found for all prewar house plans (27.9 total, 13 functional and 10.6 transitional), their mean number of storeys is the same (2.7) and the function to transition space ratio higher (1.7 against 1.4 for all prewar plans), a fact partly due to the elimination of large town houses from the selected sample.

Networks are more integrating and more differentiated in the selected sample (1.468 and 0.812 against 1.535 and 0.831), a fact already found to correlate with middling households. The inclusion of alternative routes increases integration considerably (1.385) and reduces differentiation (0.835), whereas the addition of the public space (and its links to the minimal living) does not seem to affect either, on average terms.

Eating, is on the whole the most integrated day function (**table 4.2**), but as double-reception-centred complexes.(E=R>C) were found to be the dominant trend (21.7%) in prewar medium households, this genotype constitutes the majority of selected cases (32%). Cooking is, generally speaking, a function more segregated than both eating and receiving (albeit much less so than washing up). The gap between eating and receiving is narrower than that between eating and cooking in the minimal living complex specially when the carrier is added to it but the introduction of alternative routes reduces slightly the average differentiation among the three principal day functions. The widest variation between the average figures of the selected sub-sample and those of all prewar complexes is a much lower RRA value of the space designed for cooking in the sub-sample, a trend also found to associate with medium spatial systems.

In the majority of cases a same inequality expression among main day functions is maintained regardless of the way the complex is viewed: in twenty cases (80%) no shifting of genotype occurs at all; four cases alter when the carrier is added and in one case this occurs when the street is added. The added carrier transforms equally integrated dining and reception rooms into an inequality expression of the E>R>C type in two cases and generates an inverted transformation (E>R>C into E=R>C) in one case. It also pulls the main reception room up the RRA scale in one case, turning a C>E=R genotype into the unusual R>C>E pattern. With the street linked to the minimal living complex another C>E=R case becomes E=R>C, thus reverting into the prevailing genotype.

As stated in chapter 3, the relation between the average integration and the level of differentiation in integration within networks may theoretically translate four patterns of spatial configuration, suggestive, each, of distinct modes of interaction. The assumptions behind these patterns are rephrased as follows:

1) High mean RRA and high BDF values are believed to translate networks in which segregation is a general theme with most spaces tending to be segregated from all others.

2) High mean RRA and low BDF values suggest systems in which most spaces are segregated but where a few islands of well connected cells are found. This pattern may point towards a tendency for keeping everybody and everything apart but with some spaces exercising a privileged control of access over activities (and their performers) in the rest of the domestic complex.

3) Low mean RRA and low BDF values reverses the picture to one of generally integrated systems enclosing a few spots of highly segregated spaces. . This pattern suggests a case of discriminate segregation, that is, one in which most activities are allowed to mingle whereas a few others are pushed away into isolation;

4) Low mean RRA and high BDF values tend to configure networks in which contact among most spaces is indiscriminately encouraged, and suggests a pattern of little hierarchy and greater informality, that is, one in which the interplay of actions and people is generally promoted.

4.4. <u>**A house by house perusal**</u>

4.4.1. **E=R>C cases**

As has been seen in the previous chapter, E=R>C cases dominate (21.7%) among prewar British residences (**table 3.19**), as represented in the sample, and specially within middling complexes (28.9% of cases), being also quite frequent among upper dwellings (10.8%). It has also been observed that this genotype tends to disappear among larger residences in the turning of the century (dropping from 25.8% before 1894 to 1.9% in the next decades), and to constitute systems smaller than their counterparts of the previous period among middling ones (**tables 3.12** through **3.18**). Average figures have thus suggested that this genotype relates to less grandiose upper dwellings but to quite large ones among medium sectors, specially before 1894.

Selected E=R>C plans have, on average, a number of total spaces below that for the whole sub-sample (**table 4.1b**), but an equivalent number of function cells and storeys, a fact that points towards a less segmented circulation network in relation to other types in the subsample. Five of the eight cases had previously been classified as middle middle class (houses 77, 116, 134, 153 and 162) and three as upper middle class (houses 42, 56 and 86).

In the whole sample, upper E=R>C complexes have shown a tendency for generalised segregation (**fig.3.8**) and medium ones for splitting preferences between this and a tendency for discriminate segregation (**figs.3.8/9**). E=R>C selected cases show an average mean RRA lower than that for the sub-sample (1.452 av.mean RRA) and the lowest mean BDF (0.789) among selected prevailing genotypes, a configuration aspect that points, on average terms, to the second tendency, that of fairly well integrated complexes with pockets of segregated spaces. The addition of the exterior tends to reduce general differentiation, specially when all routes (minimal living plus carrier) are considered. Mean integration, however, increases when the carrier is added but not when the front door link is taken into account.

Despite the fact that the main reception rooms share an equal RRA value, E=R>C cases present some functional differentiation (**table 4.2b**) in terms of the minimal living complex (0.993 func.BDF) and this tends to increase (0.989 func.BDF) when the carrier is added.

Rooted from the street via the front door, permeability graphs shape as a ringless tree, resembling a fish's backbone, with a trunk of transition spaces splitting at low depth levels into end-point reception and dining rooms as well as into a more or less long branch of service-related spaces that includes the kitchen. The tree trunk proceeds upwards to split again, at intervals, into upper floor spaces, mostly end-point cells. A few minor variations can be found in the graphs and shall be discussed as each case is presented.

The addition of the carrier, may rearrange access graphs in different ways. In most cases the service branch folds into a ring passing through the carrier, with the trunk of transition spaces and upper floor rooms springing from this shallow ring. In some cases either the dining or the main reception rooms (or both) or, yet, a transition space that is part of the circuit connecting reception rooms, links to the carrier, generating a second or a second and third rings.

House 153 (**fig.4.1a**), is one of two semi-detached cottages designed for Bournville[148] to a programme, classified as middle middle class, that includes drawing and dining rooms, kitchen and scullery, and four bedrooms.

The design translates into a fish-backbone-like type of access graph with the service branch springing from the main hall and the kitchen leading directly to it. The hall attaches to another lump of transition space that accesses the staircase and the reception rooms. The graph looks particularly stretched because a sequence of spaces —open porch (19), courtyard (20) and front garden (21) — lies between the minimal living complex and the public space. A single ring passes through the exterior when the scullery (18) is linked to the carrier.

House 116 (**fig.4.1b**) is a compact plan of a building proposed to be built in Slough for a gentleman[149] to a programme associated with middling socioeconomic groups. It includes three reception cells — drawing, dining and breakfast room — which link straight to the staircase hall (16), at depth 1 from the entrance lobby (19). An intermediating lump of space (13) links the hall and the kitchen.

When all routes connecting the exterior and the minimal living complex are considered, a second loop — besides the usual outdoor service route — passes through the carrier, and offers an alternative pathway linking the dining room and the entrance circulation circuit.

House 86 (**fig.4.1c**)which had *...just been completed ...* at Llandaff for a ... *member of the firm of Halliday and Anderson, architects, of Cardiff* [150] in

[148] The Builder, Feb.13,1904

[149] The Building News, April 2,1897.

[150] Idem, Jan.24, 1890.

January 1890, configures a case of upper middle class layout with drawing room, dining room, study (not to mention the ample hall), kitchen, scullery and pantry. A verandah and a conservatory add up to its status level although these have not been considered in this analysis for reasons exposed in chapter 1.

The conspicuously compact design translates into a quite shallow graph, very economical in terms of transition spaces, and displays an alternative route linking bath and toilet rooms to what is supposedly the master bedroom (5). The scheme is, however, quite conventional in all other aspects with the service branch springing from the hall (19) to which it links by two transition spaces (18 and 20). The main reception rooms lie at depth 1 from the hall, and the kitchen is two levels deeper.

When alternative routes are considered three rings pass throughout the carrier: a large one including the usual service access and two small ones representing the link between the garden and the principal reception rooms through the verandah and the conservatory.

House 77 (**fig.4.2a**) is an example of a design submitted to the frequent theme competitions launched by The Building News,[151] this particular theme being *A Pair of Suburban Villas.*

The programme is typical of a middling turn-of-century residence and translates into an access graph in all ways similar to the usual bushy tree model with the two reception rooms (22 and 23) shallower than all other function cells and the kitchen (17), one level deeper, lying in a service branch which springs from the transition space that links the reception rooms. This branch folds into the carrier when all outdoor links are considered.

House 134 (**fig.4.2b**) is another set of drawings for a *Pair of Suburban Villas,*[152] a very recurrent competition theme, this time in 1900. Its programme, identified as middle-of-the-social-road, defines a permeability graph of the backbone type with both reception rooms (20 and 22) as well as the service branch springing from the staircase hall (25), the kitchen (27) being one level

[151] The Building News, 1889, Jan.25.

[152] Idem, Aug.24,1900.

deeper than those. Again, a second ring links garden and social circuit when alternative routes are considered.

House 42 (**fig.4.3a**) is a villa designed by Norman Shaw,[153] and classified as upper middle class. Its layout of three reception rooms, two service rooms and eight bedrooms defines a permeability graph with the usual characteristics. The two chief reception rooms (10 and 11) and the service branch spring from the same transition space (5) and a third reception room — the library (12) — branches from a shallower level. When the interior spaces are linked to the exterior through both external doorways, the resulting access graph is very much the ordinary single-loop type. A basement branch linking storage cells to the service zone, springs from the ring.

House 162 (**fig.4.3b**) is a theme competition design for *A Doctor's House* [154] whose programme characterises the case as a middle middle class residence. Its mixed purpose explains the unusual presence of an internal ground floor ring, connecting the family spaces and the surgery, that offers what looks like an inner background access for the doctor. Another internal ring links a first floor bedroom and dressing room. As expected, the surgery ring connects to the exterior, generating a second ring through the carrier

House 56 (**fig.4.4**)is a vicarage *to be erected* [155]. Its programme includes three reception rooms, three service rooms and six bedrooms, besides other amenities, thus defining an upper middle class profile. It translates into a permeability graph that displays the usual features plus two rings linking first floor bedrooms and respective dressing rooms. When all outdoor routes are added, a second loop, besides the service path, passes through the carrier and connects transition spaces in the entrance circuit.

As described above, access graphs show that various similarities, other than a common main-day-functions genotype, unite the examples presented above. However the figures in **table 4.1b** show that quite distinct RRA and BDF values point towards diverse models of spatial configuration when cases are considered individually. The following paragraphs attempt to examine how

[153] Idem, Nov.23, 1877

[154] Idem, Nov.25, 1904.

[155] Idem, Jun.17, 1881.

patterns of global configuration relate to the ways in which certain spaces interconnect. It also investigates how the system is restructured when the presence of visitors is anticipated, by exploring the main alterations affecting the minimal living complex when it is linked to the street via the front door (plus intermediate spaces) as well as when alternative access routes into the dwelling are considered.

Inhabitants (minimal living only)

Easy access is a synonym of transition spaces in all cases. Five transition lumps of space rank before the most integrated function cell in three cases (116, 86 and 77); six segments in two others (153 and 134); seven, in another two (42 and 162) and nine in house 56.

However, as repeatedly indicated in chapter 3, the number of transition spaces or even their proportion in relation to that of function cells in no guarantee of more or less integration in the system. Houses 153 and 42 and houses 86 and 162 illustrate the point. The first pair have very approximate average integration values (1.529 and 1.564) but quite contrasting function/transition space ratios (1.4 and 1.7). The same can be said about the second pair (1.25 and 1.257 mean RRA, respectively, and 2.6 and 1.4 func./tran. ratio).

The permeability graphs (rooted from the street) of houses 42 and 153, suggest that the higher mean integration in house 42 associates with many spaces being connected to two transition segments, more or less centrally located, whereas in house 153, function spaces tend to link to different segments. This seems to have the effect of potentializing the disintegrating character of the circulation system.

In house 86 a large number of rooms link to the upstairs corridor (8) but its integrating effect seems to be diminished by the fact that this strong 'branching up' locates in the extreme end of the system whereas in house 162 a maximum splitting up of cells is centrally located in space 18, not to mention the internal central ring (the surgery circuit on the ground floor) that certainly helps to increase mean integration.

The contrasting levels of integration and differentiation between houses 42 (1.564 mean RRA, 0.829 BDF) and 162 (1.257 mean RRA, 0.814 BDF), with an equivalent proportion of transition to function spaces (1.4), further emphasise the point.

Furthermore, the relation between average integration and differentiation in terms of the complex does not always translate hierarchy among day functions. Whereas the correlation between mean integration and global differentiation in the complex for selected plans is quite significant (p.= 0.01), with more integrating complexes tending to be also more differentiated, that between mean RRA and functional differentiation (p.=0.8532) and that between general and functional differentiation (0.7131) is not.

Differentiation among main day functions in E=R>C complexes refers basically to how the family/guests area (represented by the chief reception rooms) relates to the service territory (represented by the kitchen) because since there is no differentiation between the two reception rooms, what is actually being measured is the gap in the level of accessibility between these and the kitchen.

For instance, house 162 is more integrated and differentiated than house 42 (**table 4.1b**), yet their functional differentiation — very low — is the same (0.999, **table 4.2b**). Common patterns of functional articulation between the two examples can be found in the RRA scale of their spaces (**table 4.3**), their permeability graphs and their very layouts (**figure 4.3**). In both, first floor bedrooms, main reception rooms and kitchen bunch in the most integrated half of the scale, taking the average mean RRA of the sub-sample (1.468) as reference, and only one lump of transition space separates the kitchen from the main hall to which the chief reception rooms are linked. This suggests that in these houses drawing and dining rooms are the pillars of a family plus guests sphere which does not exclude entirely the kitchen. It can perhaps be assumed that the kitchen, in these cases, is very much a part of the spatial set of daily family interaction, being closely linked to the locus of integration and yet carefully 'detachable' from it by means of a transition space (14 in house 42 and 25 in house 162), which screens the chief service room from direct contact with the visitors' paths.

A similar arrangement of main day functions can be found in houses 116, 77 (0.993 func.BDF, both) and 134 (0.996 func.BDF). However, in house 134 all day rooms fall in the segregated half of the RRA scale, the same applying to house 153. In house 153 (0.996 func.BDF), the service branch does not spring from the same transition segment as the two reception rooms, a fact thought to contribute to less average integration. However, a same number of intervening transition spaces sets kitchen and reception rooms apart. In all cases, approximate levels of accessibility are granted to reception rooms and kitchens with higher segregation reserved for sculleries, attic bedrooms and storage cells.

In houses 86 and 56, with the highest level of functional differentiation among selected E=R>C types, the relationship between social and service territories seems to be another.

In house 86 (0.984 func.BDF), reception rooms and the kitchen are positioned wide apart in the RRA scale and two transition spaces (18 and 20) separate the kitchen from the hub of movement (19) The layout confirms measurements by showing how the kitchen is quite conspicuously insulated from the social arena by a prolonged wall and a rather tortuous route initiating beneath the staircase.

In house 56 (0.987 func.BDF), it looks as if one can only choose the place to be segregated in unless he, or she, decides to settle in the staircase hall or its ancillary spaces. Everything is as apart as everything else as possible, the least segregated function cell being, most suggestively, a first floor room labelled as *work room* (the vicar's own private space?) and bedroom 17, adjacent to that, followed by bedroom 16 (another to sport a contiguous dressing room). The two chief reception rooms, the wine cellar, the butler's pantry — all somewhat associated with entertaining guests — come next, followed by another bedroom and the study. The kitchen lies deep in the scale being definitely not part of the above referred circuit, from which it is shielded by three transition spaces and by the pantry that constitutes an obligatory route between the family/guests arena and the service quarters. The scullery, attic bedrooms and storage cells as well as the rear toilet closet are the most segregated spaces.

Findings thus suggest that behind a common genotype and a common theme of privileged accessibility to a family-plus-guests community, two models of territorial articulation were revealed. In one, the kitchen is discreetly set aside but kept within fairly easy reach in relation to the social circuit; in the other, the kitchen is downright segregated. This suggest that in the former model the kitchen is perhaps more of a family space than in the latter.

The above assumption could only be satisfactorily tested through a case-by-case investigation of a much larger sample. However, a brief illustration of how diverse modes of contact within the household may be regulated by the way in which function spaces link to the circulation network seems to have been outlined.

Inhabitants and visitors (minimal living plus street)

When the interior spatial network and the street are linked through the path leading to the front door, complexes become more segregated in five cases (153, 116, 77, 134 and 162) and general differentiation decreases in seven (those plus houses 42 and 56) of the eight houses (**table 4.1b**). The street is more segregated than all day rooms, sculleries included, in all cases but for house 42 in which the scullery is more segregated than the street. The inclusion of the street does not affect the inequality expression among main functions in any of the cases (**table 4.2b**).

In houses 86, 42 and 56 — the three upper middle class homes — the average integration increases and so does general differentiation in houses 86 and 56. The gap in integration between reception rooms and kitchens is widened, specially in houses 86 and 56. This reinforces the character of isolation regarding the kitchen in these examples and points towards a tendency for an even more drastic exclusion of the chief service room from the family/guests circuit when the presence of guests is considered.

Findings thus suggest that the anticipation of visitors contributes to enhance general privacy (higher mean RRA) and to neutralise hierarchy (higher BDF) in most cases. This pattern points toward a strengthened opposition between private and public at the expense of internal structuring. Conversely, in the three upper middle class cases that presence pulls the system together.

Findings drawn from the observation of eight cases and conclusions based on social-related aspects found in three examples are, of course, meaningless. However, they might prove an issue for future investigations.

Inhabitants extended complex (minimal living plus carrier)

When the interior is linked to the exterior by all external doorways, the systems become more integrating and less differentiated but whereas functional differentiation also decreases, does not alter or fluctuates within irrelevant margins in most cases, the opposite occurs with houses 86, 56 and 116 where functional differentiation is greatly increased.

In house 77, 153 and 42 a single service ring passes through the carrier and in house 162 a second ring, links surgery cells to the exterior. In all, the order of integration among day functions remain unaltered and whatever gain occurs in functional differentiation is irrelevant.

In houses 116 and 134, the dining rooms link to the carrier and these spaces become more integrated than drawing rooms. Both houses become, of course, more differentiated in functional terms but whereas in house 116 the BDF value alters form 0.993 to 0.983, in house 134 this increase does not seem to be significant (from 0.996 to 0.994 BDF value).

The outdoor is more segregated than the two main reception rooms in all cases but for houses 56 and 86. In house 86, the drawing and the dining room link to the carrier and in house 56, this link occurs through a transition space (31), which bridges social and service-related cells, thus offering a shortcut from the social sphere to the back garden without risking to render any function cell too integrated. In both, the carrier becomes more integrating than any key function.

Two trends appears to underlie the spatial configuration of E=R>C complexes when all connections to the exterior are considered. In one, the presence of alternative routes is relatively unimportant (houses 153, 116, 77 and 42) whereas in the other (houses 134,116, 86 and 56) it contributes to rearrange the system and its logic by knitting family and guest spheres more tightly together and by being also part of this compound. This becomes particularly relevant in the last two cases.

In house 86 the back garden (plus conservatory and verandah, both represented by the carrier) and the two main reception rooms conform a territory that seems to be a preserve of adult social life, this being also perceivable from the plan, itself. The important role of the carrier is less obvious in house 56 where the easing of ways to a privileged community is done indirectly via transition spaces. In both of these upper middle class complexes, however, figures and graphs indicate that the carrier, realised in the back garden, becomes a valuable spatial tool for binding family and guests into a loci of interaction well severed from a segregated compound of service-related activities and their performers.

In chapter 3 it had been suggested that a choice between discriminate and generalised segregation was the theme among most prewar houses, specially those in which the focus of integration centred around the reception rooms. The insight above confirms those findings insofar as in all cases integration is either a family-plus-guests prerogative, with service-related cells, or at least some of these, pushed away into segregation, or is restricted to the circulation circuit, particularly that of the social sphere. However, two distinct sides of the first trend were also identified: one in which the kitchen is closely linked to the encounter focus and another in which the kitchen as well as all other service-related spaces, are conspicuously banned from that sphere.

In summary, findings indicate that a more or less strong opposition between the family/social sphere and a more or less powerful role of the exterior to increase this opposition underlie the apparent uniformity of these asymmetric/nondifferentiated complexes and that the way in which key spaces link to indoor and outdoor routes appears to be a paramount factor for graduating this process.

4.4.2. **E>R>C cases**

E>R>C genotypes were seen to account for 16% of prewar cases in the full sample (**table 3.19**) and to dominate among upper middle class houses (25.3%), average figures suggesting these to represent quite opulent residences. The model was also very much present among middle middle class cases (15.4%), specially in the decades around the turning of the century, and continued, it seems, being associated with larger complexes in both enclaves (**tables 3.12** through **3.18**).

Upper E>R>C types showed a tendency split into discriminate and generalised segregation with the second model, seemingly more favoured among turn-of-the-century cases (**figs.3.8/9**), whereas middling systems tended to present more balance between integration and differentiation in their complexes.

Selected E>R>C types have a higher average number of spaces, functional and transitional, and storeys than that of the subsample, and a lower function/transition space ratio. They are also less integrating, on average, but as differentiated as all selected cases seen as a whole, a pattern suggestive of pockets of privileged accessibility in a generally segregated spatial system (**table 4.1b**).

The subsample includes two plans previously classified as upper middle class (49 and 191) and three middle middle class ones (143, 160 and 226).

Average functional differentiation is the highest in the sample for interior spaces but, specially, when alternative routes are added (**table 4.2b**).

They all translate into permeability graphs that besides the usual spinal chord of transition spaces, present the dining room in a ring which links to the service branch as well as to the main circulation core.

All cases present an alternative access circuit into the system, other than the service exterior route, when the carrier is linked to the minimal living.

Again individual scrutiny reveals distinct models of interface at action which are, yet, slightly diverse from what the observation of E=R>C types has shown. Strong integration combined to a very differentiated complex does not occur in this group. On the other hand, networks including a balanced number of integrated and segregated spaces combined with strong differentiation were found in two (houses 49 and 160) out of five cases; one example shows a complex that may perhaps be seen as one of generalised segregation (house 226) whereas in another, a system of fairly generalised integration is suggested (house 191). The last complex (143) is also quite integrating but fairly differentiated as well, besides being highly differentiation in functional terms.

House 143 (**fig.4.5a**) is another competition design for *A Pair of Suburban Villas* [156] seemingly for a family of mediocre means. Alternate segments in a chain of transition spaces split into bushy flocks of function cells, the shallowest one including the main reception room and the dining room ring from which the service branch sprouts.

House 226 (**fig.4.5b**) was designed for a competition theme of *Four houses in a Garden City*,[157] whose programme contains the usual facilities expected to suit the needs of a middling household. Transition fragmentation is high with a single or a few function rooms linking to alternate segments but for the shallowest hub (21) from which the main reception room and the dining room — on a ring — spring. A long service branch sprouts from this ring so that access to the kitchen may be either via the dining room or through a sequence of transition spaces that encircles the staircase.

House 160 (**fig.4.6a**), described as *a clever plan for a cottage at Northolt* [158], is organised in a layout which Franklin[159] terms as the *butterfly plan* or the *double suntrap*, a new invention dating from the last years of the nineteenth century, according to the author. Its programme qualifies in the middle middle class category defined in the sample. Bunches of rooms spring from three alternate transition spaces with the staircase split into two flights connecting the same pair of circulation nodes. Again, a winding chain of transition spaces shields the kitchen entirely from the family-guests sphere whose chief cells unite in the entrance/staircase hall. Again, the dining room offers a shortcut

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[156] Idem, April 18, 1902.

[157] The Building News, Nov.17, 1911.

[158] The Builder, Nov.19,1904.

[159] Franklin, J.,op.cit.p.232.

into the service quarters.

House 49 **(fig.4.6b)** is an upper middle class detached residence in Bedford Park, Chiswick, designed by Norman Shaw.[160] Its permeability graph includes two rings, the dining room being part of both, which offer an intricate circulation system that enables this room and the kitchen to access each other and the upstairs cells with no crossing over the visitors' path at any point. A split staircase bottom flight is a key factor for achieving such aims without the need of backstairs.

House 191 **(fig.4.7)** is a design for an architect's house at Kidbrooke Grove, in Blackheath,[161] with three reception rooms — labelled as *hall, dining room* and *study* — three service rooms and eight bedrooms, thus believed to have been the home of a quite wealthy family. Its permeability graph also shows two internal ground floor rings but here the kitchen also lies on a ring so that all three essential functions enjoy alternative access with the dining room functioning as a hinge between the social and the service circuits.

Inhabitants

Again, the theme is, in general terms, one of an integrating core of transitional spaces with more or less easily accessible first floor bedrooms and social rooms. Four transition spaces rank in the integration scale before the first function cell in one case (house 226); six spaces in two others (143 and 160), seven in another (191) and ten in house 49.

The relativeness of the correlation between the proportion of transition to function spaces and mean RRA values is again apparent as, for instance, houses 191 and 143 show approximate levels of mean integration (1.287 and 1.347, respectively) but a dramatic contrast in function/transition space ratio (2.3 and 1.2, respectively), whereas the latter example and house 49 have the same number of storeys, an equal proportion of function to transition spaces (1.2) and quite diverse levels of general integration (1.347 and 1.584 mean RRA). Permeability graphs suggest this to be due to a denser splitting up around central segments (16 and 23) of the circulation core in house 143,

[160] The Builder, Oct.31, 1879.
[161] Idem, Nov.20, 1908.

whereas part of the branching in house 49 cluster around one of the extremes of the circulation network (space 43).

Again there is no significant correlation (p.= .832) between general and functional differentiation which is, obviously, higher than that for the previous genotype and, in fact, the highest in the sub-sample. Neat gaps separate each day functions in terms of accessibility in most cases with clever schemes apparently underpinning the way transition spaces, but also adjacencies, are manipulated to grant dining rooms with a great versatility for shifting from a social to a family sphere. Access graphs suggest that dining rooms may either pair off with the main reception room, thus defining a family-plus-guests territory which opposes the kitchen, or with the kitchen redefining the interior geography into an inhabitants' and an outsiders' circuit.

In houses 143 and 160, a strong functional differentiation seems to result from the very segregated position of the kitchen whereas the configuration gap between dining and drawing room is much narrower, a fact that denotes a neat separation between an interlocked community of family and guests and the rest. In houses 49, and 226, however, integration seems to be a prerogative of dining rooms only, the latter complex being also an example of generally shared segregation. In this case the main reception room (labelled *sitting room* and the kitchen) as well as all other rooms but for the dining room, present RRA values higher than the average mean for the subsample, with sculleries and attic rooms deep into the rear end of the scale.

On the other hand, house 191 seems to stick to the pattern of generalised integration as previously suggested. Functional differentiation is fairly low (the lowest in selected E>R>C cases) and transition spaces, first floor bedrooms, reception rooms, the kitchen and the pantry all lump together in the integrated half of the RRA scale. Attic bedrooms and the scullery do not rank very far from those while the really segregated spaces are storage cells. What was said about dining rooms in E>R>C complexes seems to have reached state-of-the-art level in this particular example. Spacious, centrally located and equipped with three interior doors, this setting appears to sew the whole system together.

As far as the complex of interior spaces is concerned, the picture outlined above suggests that a common theme underlie both E=R>C and E>R>C genotypes insofar as they both point towards a theme of separation between social and service related activities and actors. However, whereas in the former model the two reception rooms appear to be the two halves of a somewhat homogenised family-plus-guests territory, in the latter it looks as if dining rooms are, in fact, the locus of daily living which can be graduated into a more or less social territory at convenience.

Inhabitants and visitors

A consistent pattern of alteration has not been found when the street is linked to these complexes which may become more integrating (houses 160 and 226), more segregating (house 143) or behave with near indifference (houses 49 and 191). General differentiation may increase (house 143 and 226), decrease (house 160) or show no relevant alteration (houses 49 and 191).

The street is more segregated than all function day rooms (sculleries included) in houses 143 and 191, ranks between the kitchen and the scullery in houses 226 and 49 and is more integrated than the kitchen in house 160.

Inhabitants extended complex

The role of the exterior is, generally speaking, very important among E>R>C houses all presenting more than one ring passing through the carrier.

The presence of alternative routes does not alter the order of integration among chief function rooms in four out of the five examples but does affect differentiation in both general and functional terms, the former being reduced, the latter increased with the gardens being connected to dining rooms either directly (house 49) or via transition spaces (houses 160, 226 and 143). The carrier is more integrating than any day room, in houses 160 and 226 and ranks between main reception rooms and the service cells in houses 49 and 143.

In house 191 two rings pass through the carrier with the two chief reception rooms lying in both. The main reception room (39) links directly to the garden and becomes as integrated as the dining when the carrier is added to the complex. Thus the inequality expression is altered and reverts to the E=R>C genotype.

In all cases outdoor spaces become part of the social sphere and contribute to stress its importance in the spatial context by defining a social circuit of reception and transition spaces which may or may not include actual function spaces *en route* but offers a shortcut between these and the garden. The carrier — realised in the garden — is therefore, again, a crucial element in a visitors-orientated sphere.

The importance of the plot as well as of the dining room for redefining routes and boundaries may have to do with the apparent indifference with which these systems behave to the addition of the public space. It looks as if all requirements for reconstructing the spatial networks into distinct territories according to convenience is already resolved within the context of the minimal living itself, and very specially when alternative routes reinforce its circulation web.

4.4.3. **C>E=R cases**

These constitute 12.7% of prewar cases in the full sample (**table 3.19**), accounting for 12% of upper residences and 17.5% of middling ones. This proportion expands into the overwhelmingly dominant model (36.2%) within the latter group after 1923, so that if one genotypical type had to be picked up for representing middling post-war British dwellings, in terms of spatial configuration among their chief day functions, this would certainly be it (**tables 3.12** through **3.18**).

The analysis of the full sample has shown that C>E=R complexes tend to grow in size around the turning of the century as compared to the previous period (**tables 3.15/16**) and to present a lower proportion of transition to function spaces than any other prevailing prewar genotype (**tables 3.19**). They are also the most integrated, on average, and present a mean BDF value equal to that of all prewar prevailing genotypes put together, thus indicating complexes in which the integrating and segregating spaces are fairly well balanced in number, the most part tending to be on the integrating side.

As happens in the full sample, within the selected sample, these genotypes constitute the central cluster as refers size. Average figures for total as well as function spaces are closer than those of any other category to the mean figures for all selected plans. Again, as occurs with C>E=R cases in relation to all prewar complexes (**tables 3.19**) the average function/transition space ratio of these selected cases is much higher (2.1) than that for the sub-sample (1.7) a fact that certainly contributes to their high mean integration. Selected C>E=R complexes are the most integrating in the subsample, on average (1.382 against 1.468 av.mean RRA), but present less differentiation (0.822 against 0.812 av.BDF) than that shown in the subsample, as a whole.

Individually and as far as each complex is concerned, mean RRA values range from what may be considered as very integrating (1.186) for a prewar British home, to just a little segregating (1.554) and from quite strongly (0.771 BDF) to little differentiated (0.872). On the other hand function differentiation is by far the lowest in the subsample. In the five C>E=R cases, BDF values among key functions range from 0.995, much weaker than the average for the sub-sample (0.983), to virtually none.

Permeability graphs generated by these systems may be quite outstretched, as in house 72, not surprisingly the least integrated complex, with branches springing from different transition segments, or very compact with the thickest bushes sprouting from circulation nodes centrally located, as in house 192, the most integrating structure. But what seems to be the real clue for reducing functional differentiation in these systems is the way the three chief day functions relate to the circulation network.

The arrangement of day rooms in theses plans presents some variation worth noting: in some cases all three principal day functions spring from a same transition segment in the backbone-like circulation network, with the kitchen, besides the main reception rooms, being directly connected to it (houses 192 and 201); in one case, a pantry intermediates kitchen and kernel spaces (house 137); and in two others (houses 211 and 72) the service branch springs from a core space one level deeper than that which accesses the main reception rooms and an intervening space sets the kitchen apart from that core. Such variations appear to be particularly important to define spatial boundaries in terms of the distinct communities of home users as shall be discussed.

The exterior seems to constitute another important element for defining and redefining territories within these complexes. When alternative routes are considered, all cases show a second ring, apart from the usual exterior service circuit, passing through the carrier.

C>E=R cases in the subsample include two examples classified as upper middle class (houses 137 and 192) and three middle middle class ones (houses 72, 201 and 211).

House 192 (**fig.4.8a**) is identified in the caption accompanying the drawings as a *house on the Rothley Temple Estate* [162]. Although having been considered as upper middle class in terms of average figures for the main sample, a close look shows that despite its two reception rooms, five bedrooms (one explicitly labelled maid's bedroom) and a rather large hall, obviously serving more than transitional purposes, its scope does not differ much from that of many medium-sized houses in the sample. Its plan generates a compact permeability graph, presenting the lowest proportion of transition to function spaces in the subsample (3.5), and accesses concentrate in two centrally located transition spaces (12 and 21). The three chief day rooms link directly to the main hall (21).

House 137 (**fig.4.8b**) classified in chapter 3 as of upper status and referred, in 1900, as ... *about to be erected near the village of Berkswell, Coventry for use as a country residence*[163] ... is another compact plan evolving around a large hall (21) crossed by circulation paths but in this case a servery lobby (17) screens the kitchen from direct access into the main hall.

House 201 (**fig.4.9a**) is another *Design for a Doctor's House in a Small Town* competition,[164] with a typically middle middle class brief. Its spatial structure alternates focus of dense interconnections and strong transition

[162] The Building News, Jan.15, 1909.

[163] Idem, Sep.7, 1900

[164] Idem, May 28, 1909.

fragmentation, with some rather tortuous stretches of circulation spaces. All main day rooms link directly to the central hall (36).

House 72 **(fig.4.9b)** is a prize-winning design in a theme competition, this time for *A Suburban Residence*,[165] according to a brief that fits that common for the middling socioeconomic group. Although its layout appears to be fairly compact the access graph shows a lot of transition segmentation with rooms linked to different lumps of circulation spaces. The service branch links to the transition core (18) is deeper and more centrally located than that connecting the reception rooms (20) and access to the kitchen is intermediated by a lobby (24).

House 211 **(fig.4.10)** is part of a block designed for Hampstead Garden Suburb,[166] here classified as middle middle class. The plan has a very particular shape but the structure is much the same as that in the previous example with the kitchen screened from the reception rooms by a transition space (15) and the pantry (20).

Inhabitants

Again most integrated spaces are transitional. In two instances a pantry, or servery lobby, is part of the leading roll of integrated spaces but, in these cases, their function purpose is secondary in relation to their transitional character as links between social and service areas. Thus, four circulation spaces heads the RRA scale in two C>E=R examples (houses 102 and 137); six in one (house 72); and seven in a further two (houses 201 and 211). These figures are, however, generally lower than in previous cases.

In houses 192, 137 and 201, all ground floor functions (scullery inclusive) bunch in the integrating side of the RRA scale **(table 4.3)**. In houses 211 and 72, kitchens (1.468 RRA value) constitute precisely the watershed between the integrating and the segregating halves of the scale whereas reception rooms, attic bedrooms and sculleries rank in the segregated half. However, while in house 201, no wide gap (and virtually no syntactic differentiation) separates the kitchen from the two reception rooms, in house 72 drawing and dining

[165] Idem, Dec.30, 1887.

[166] The Builder, Mar.12, 1910.

rooms share an intermediate position between that cell and the rest of the service zone, a fact that suggests that these spaces are perhaps reserved primarily for social purposes.

These systems seem to be a modified version of the E=R>C types with easily accessible kitchens and great stress put on central halls. One cannot state, given the resumed number of examined cases, that in these houses, kitchens have been firmly upgraded into family rooms but they do seem to have travelled a long way towards the hub of movement, dragging the whole complex around them, a property strongly indicated by the analysis of prevailing trends in the full sample.

Inhabitants and visitors

The genotype does not alter with the street considered in four of the five cases but the gap between the kitchen and the main reception rooms is narrowed in all cases but for house 192. In house 211, the anticipation of guests pulls the main reception rooms into the focus of integration and the kitchen away from it, thus reverting the genotype into an E=R>C case. The public space is more segregated than any of the day rooms in all cases.

Inhabitants extended complex

Outdoor routes increase integration and reduce differentiation in all cases but for house 201 where an irrelevant increase in differentiation occurs. The gap between kitchen and reception rooms is slightly widened in house 201. In all other instances this gap is narrowed. However, this 'narrowing' does not seem to translate an increased differentiation in the system, all complexes behaving with indifference in terms of functional BDF values but for house 137, which shows considerably more differentiation (from 0.998 to 0.988).

In all cases the carrier appears to contribute to strengthen the family/social links by bringing the garden into the main reception rooms circuit, via transition spaces, in four cases, and by direct access to the drawing room in house 137, where the garden is used more explicitly to the advantage of visitors whose headquarters — the drawing room — becomes the focus of integration among day rooms. The interior spatial intelligibility is therefore altered to an unusual R>C>E genotype and a new reading is offered to visitors.

In house 201, besides the usual service route, the carrier links to the main hall and to the patients' room thus becoming part of three rings — a service, a social and a client-related route. This adds a distinctive separation between the service and the social milieus in terms of movement routes and brings the garden into the social sphere.

The carrier is more integrating than the day functions in houses 211 and 72 and more integrated than the kitchen and the dining room in houses 137 and 201.

As has been seen, kitchens as integration centres define a pattern associated essentially with the interior complex, judging by the frequency in which this position was challenged. Two out of five cases is the highest rate of reconstructed reading (two out of eight among E=R>C models and one out of five among E>R>C ones) in the subsample.

4.4.4. **E/C>R cases**

Although constituting just 10.7% of all prewar plans in the full sample (**table 3.19**), this genotype dominates among smaller complexes throughout the studied period (32.8% before 1914 and 23% afterwards).

They usually present fairly well balanced networks in terms of integrated and segregated spaces although tending to become more generally segregated after the war.

Selected E/C>R cases constitute the smallest plans in the subsample and have all been classified as lower middle class. Complexes are, on average, fairly integrating (1.451 av.mean RRA) and not very much differentiated (0.82 av.BDF, see **table 4.1b**).

Their permeability graphs display the usual ringless backbone-like structure and a single carrier ring when the back door entrance is considered. But despite their reduced size, these complexes assemble distinct configuration patterns as shall be discussed.

House 24 (**fig.4.11 a**) is half of a building comprising two semi-detached dwellings referred as *cottages erected at Bushey Heath* , whose drawings were exhibited at the Royal Academy.[167] It has a very compact layout with parlour, kitchen and scullery on the ground floor and three bedrooms on the first floor. The programme fits neatly into the lower orders of middle class or upper sectors of working class dwellings identified in the sample, being positioned perhaps in a slightly higher band among its peers, in terms of mean numbers. Function spaces link to three nodes in the circulation core of a somewhat stretched up permeability graph, if one considers space 4, unlabelled, as an early provision for perhaps a future bathroom. The parlour and the kitchen-living room link directly to the entrance hall (11).

House 81 (**fig.4.11 b**), one of two semi-detached cottages designed for the Upminster Hall Estate, Essex, is referred as ... *a good example of effective and inexpensive building ...*[168] . With a living room, a kitchen (thought to amalgamate both cooking and eating) and a scullery, as well as a number of storage cells on the ground floor and three bedrooms on the first. Again, three transition segments split into dead-end rooms, with the shallowest (13) linking parlour and kitchen.

House 114 (**fig.4.11 c**), of a group of cottages, was designed as ... *part of a large philanthropic scheme to provide homes for young married men of the working class* [169] and proposed to be built in Harrow. Four bedrooms upstairs and a bathroom, a commodity which might have constituted a luxurious novelty in 1895 for a house of its social status, indicate this to be a superior dwelling for its social category. The two principal day rooms link directly to the staircase passage (15).

House 159 (**fig.4.11 d**), referred to as *a gardener's cottage ... for the Rev. J F Tarleton* at Great Warley Rectory, Essex[170], assembles a parlour, a living room

[167] The Building News, May 28, 1875.
[168] Idem, Oct.18, 1889.
[169] The Builder, Dec.14, 1895.
[170] Idem, Nov.19, 1904.

and a scullery, besides storage cells, an earth closet, and three bedrooms on the first floor. Its permeability graph rooted from an enclosed porch splits at once into the main reception room, at depth 1, and again, in the living room, also at depth 1, branching into the service area and the staircase. This is a rare case (the only one among selected examples) in which a function space is an obligatory access to the rest of the complex.

Inhabitants

Most integrating spaces are transitional in three of the four cases. In houses 81 and 114, three lumps of circulation space heads the integration scale and in house 24 these are four. In house 159, however, the most integrated space is the living room.

Three quite distinct trends of spatial articulation can be found among this group: in house 24, a fairly integrated (1.493 mean RRA) but quite strongly differentiated complex (0.801) easy access is confined to the circulation system whereas all function rooms fall in the segregated half of the RRA scale. In houses 81 and 114 the opposition does not seem to be between movement and function but between day and night, with the kitchen and the parlour (or living room) being quite integrated and bedrooms quite segregated. In house 159, a pattern of integrating family settings (scullery included) opposes diametrically the setting for receiving outsiders. This seems to be a typical example of the E/C>R pattern translated into the E>C>R pattern, referred by Hillier and Hanson as a powerful genotypical theme in British domestic space, specially after gas cookers and other facilities turned the scullery into a kitchen.

Inhabitants and visitors

The anticipation of outsiders does not affect genotypes although it does reduce the gap between the main living room and the reception room which becomes significantly more integrated.

Inhabitants extended complex

In all cases the only alternative route links the scullery to the exterior in a ring though the carrier which may be as integrating as the living room (house 24), or more segregated than any day function (house 159). In three cases (houses 24, 81 and 159), the back door route reduces the gap in the level of accessibility between the kitchen and the main reception room.

So, although four cases do not allow for much speculation, this reduction in the integration distance of the two main day rooms points towards an essentially inhabitants-orientated character of the alternative exterior route.

4.4.5. **E>C>R cases**

E>C>R genotypes comprise just 9.4% of all prewar houses in the sample (**table 3.19**), a fact that might have determined its exclusion from this selection. However, as has been seen, this genotype became consistently more frequent in time, expanding from a mere 5% before 1894 to 12.5% in the following decades and to 13.7% after 1915. Furthermore, E>C>R cases account for 23.1% of upper middle class plans published between 1894 and 1914, average figures having suggested these to be the smallest upper complexes, on average, during the period (**table 3.16**), although, seen as a whole in terms of all prewar houses, they constitute complexes much larger than the average for the full sample.

A pattern of discriminate segregation as well as a tendency for a fair balance as regards integrating and segregating spaces emerged from a first look into these complexes (**fig.3.9**).

In the subsample the three E>C>R genotypes constitute the largest complexes, the most segregate and least differentiated, on average. One example was classified as upper middle and two as middle middle class.

Individually speaking complexes range from very integrating to very segregating, all being very little differentiated in global terms but more or less differentiated in functional terms.

Although they all define a permeability graph of the usual circulation core model, each example shows some particularity which will be pointed out below.

House 216 **(fig.4.12a)**, said in 1910 *to have been recently erected close to the West Gate* [171] in Canterbury, has three reception rooms, two service rooms and five bedrooms. Its ringless permeability graph shows the drawing room and the study springing from the shallowest transition cell and the service branch as well as the dining room from the next depth level with the dining room lying on an internal ring that links social and service areas.

House 158 **(fig.4.12b)** is one of a pair of houses erected in Upton Road, Watford.[172] Its programme is typical of middling residences and its graph has the particularity of each of the two main reception rooms as well as the service branch springing from different transition spaces: the drawing room straight from the entrance lobby, the service branch from a transition space one level deeper and the dining room (as well as the study) from the next depth level.

House 101 **(fig.4.13)** is a large semi-detached residence which, in 1894, was *... being erected by the West Brighton Estate Company.*[173] Its ringless permeability graph shows the dining room splitting from a transition space off the huge service branch and the other reception rooms linking to the shallowest branching node in the circulation kernel.

Inhabitants

Nine transition spaces are more integrating than the dining room in house 101, and seven in houses 158 and 216.

Two configuration trends can be found among this group. One (houses 216) shows a spatial system in which wide gaps in the integration scale sets dining room, kitchen and drawing room well apart thus suggesting defined boundaries for each community — family, servants and visitors — and an integration locus centred around the dining room, here believed to be also perhaps a family living room. Another trend (houses 158 and 101), shows a much narrower gap between dining room and kitchen, a sign maybe of a

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[171] Idem, July 2, 1910.

[172] Idem, Sep.30, 1904.

[173] Idem, Feb.2, 1894.

purposeful removal of the visitors' spatial focus from the inhabitants' territory, a pattern only half outlined in some of the other examples previously investigated.

House 101 also defines a picture of high and generalised segregation with the only possibility of easy access being confined to the circulation core.

Inhabitants and visitors

When the street is considered the main reception room becomes a lot more integrated in all cases but this gain is still not yet sufficient to upset the genotype. The public space is more segregated than any day rooms, sculleries inclusive.

Inhabitants extended complex

In all cases two rings pass through the carrier, one being the usual service route to the exterior, the other a social route which may contain the dining room (house 216) or may include only transition spaces that offer access from reception rooms to the garden.

No alteration in the inequality genotype occurs nor any significant change in terms of functional differentiation although the carrier reduces the gap in integration between the two main reception rooms which are offered an alternative link with the garden. The carrier is thus, a strong binder of the family/guests spheres helping, it seems, to dislocate the dining room from the family to the social circuit.

4.5. <u>**Five genotypes, a central theme and some variations**</u>

From an interior perspective of spatial articulation it has been seen that in all cases, but for one, the most integrated spaces are transitional and the most segregated ones are storage cells, attic bedrooms or spaces associated with domestic hygiene such as sculleries and toilet rooms. That is, one moves within a chain of circulation spaces that unites and zones the system into distinct territories which may be more or less segregated from all others, so that, as far as permanency in a certain space goes, choice is basically about how much isolation one desires or is meant to settle for.

However, the transition-space-centred logic common, it seems, to almost the entire spectrum of late nineteenth and early twentieth century houses represented in the full sample by no means exhaust the configuration profile of the British home.

Nor does the variation in modes of spatial articulation that privileges a certain activity (or activities) at the expense of others — the genotypes — for beneath global prevailing patterns of articulation among principal rooms, there appears to be a range of undercurrents that yield (and betray) distinct modes of interaction among the different communities of home users at action.

Five different ways in which spatial systems are organised to gravitate around a certain space (or spaces) were examined: a double-reception-centred/kitchen-segregated model (E=R>C) and its inverted version — the kitchen-centred/double-reception-segregated one (C>E=R); a dining-integrated-kitchen-segregated model (E>R>C) and its dining-integrated-reception-segregated variation (E>C>R) and a derivation of this pattern — the dining/cooking-integrated/reception-segregated type (E/C>R).

In double-reception-centred complexes, the social arena may be itself a fairly powerful focus of interface, easily accessing most of the other spaces, may be relatively withdrawn in relation to the transition network, or yet downright isolated but will, in any case, be less out-of-way than the spaces in the servants' zones. However, two trends, at least, underlie these complexes. In either the system is certainly organised to privilege the right of access to a community of family and guests but whereas in some cases the main service room, albeit discreetly tucked away, is granted a great deal of accessibility and may be easily reached from the system's focal point of interaction, in the other kitchens and its whole sect of ancillary spaces are banned from that circuit. The second trend was seen to coincide with the apparently wealthier houses although the scope of the data does not allow for conclusions.

If the assumption that functional differentiation among E=R>C genotypes has to do with how segregated the kitchen is meant to be is correct, by the same token, that among C>E=R types refers to how segregated one desires the social circuit to be from the centre of domestic daily service. Not surprisingly, E=R>C genotypes present more functional differentiation than their inverted counterparts, a fact which suggests that whereas kitchens may or may not be easily accessible, the conjoint pillars of social intercourse *must* be so, even when the focus of household interaction was chosen to lie in the kitchen area.

Among E>R>C cases two main trends can also be perceived. In some cases, there is a neat hierarchy among the two main reception rooms so that the dining room seems designed to constitute the locus of daily encounter whereas the main reception room is reserved a much more retired position, being nearly as segregated as the kitchen. This picture is suggestive of a pattern of interaction centred in a family milieu spatialised in the dining room which appears to be also a daily living room. In other cases, the level of accessibility granted to the main reception room approximates that of the dining room with the kitchen being, in fact the only segregated space, a theme very similar to the more differentiated E=R>C types. Between the two trends, some gradation can, of course, be found.

What was said above applies closely to E>C>R types, except that in these it is the main reception room which is sometimes clearly reserved for special use whereas the dining room and the kitchen may double as what seems like a family territory or be neatly set apart in configuration terms, with the former constituting the daily arena and the latter quite isolated.

However, despite their variations, both dining-centred models examined above have revealed a facet that appears to settle these genotypes into a specially well developed design category, although this property was manifested predominantly among E>R>C cases . It has to do with the way dining rooms are configured to endow this setting with an amazing and powerful property for redefining the interior spatial geography. Not only the links to the circulation core but also patterns of adjacency are manipulated with expertise so that dining rooms may join the main reception room into a family-plus-guest arena or easily link to the kitchen thus restructuring boundaries into an inhabitants only sphere.

Finally, among smaller households, three underlying patterns were identified. Despite the fact that the kitchen/living rooms is obviously meant to be the locus of daily living in all cases, it has been seen that high levels of accessibility may be strongly restricted to circulation areas; another tendency seems to contrast day and night functions, the former being integrating, the latter segregated and a third trend reveals a strong opposition between the setting of daily living and the 'best room', the former being not only the most integrating function space but the very hub of movement, the latter, the most segregated space but for a storage compartment and the earth closet.

Furthermore, neither a transition-space-centred logic, nor the rules underlying the configuration of principal rooms, and their various nuances, exhaust the spatial profile of British nineteenth and early twentieth century homes. Structures not only vary from case to case but also, sometimes, according to how the complex is approached.

The inclusion of the street and its links to the complex of interior spaces will widen the gap in the level of accessibility between kitchens and reception rooms in many instances. Even when the kitchen is the most accessible day room, the anticipation of visitors may send it away into segregation. Thus, although kitchens can be considered more or less as part of the family arena in houses of nearly all status, the addition of the street often contributes to remove it from this circuit which is knitted more closely together by a reduction in access differentiation between reception rooms.

Alternative routes are either restricted service circuits, linking service-related activities to the exterior and can be found in every house, or constitute this and a second (or more) path. This extra circuit is in all cases well severed from the service route and enables the garden to be brought into the social sphere. In such cases functional differentiation is often increased and the very hierarchical configuration among key functions may be upset.

An increase in functional differentiation with the carrier added to the complex was verified in four out of the nine upper residences in the sub-sample. On the other hand, functional differentiation was reduced in three out of the four lower middle class dwellings and fluctuated among middling ones. This coincidence appears to point towards a crucial role played by the exterior for strengthening opposition between the family-plus-guests and the servants' communities in wealthier dwellings, and a contrary tendency for levelling hierarchy and defining a more homogeneous inhabitants' (and informal callers?) territory among smaller homes

Any further speculation along this line would be at least premature, given the scanty data on which the above comments have been founded. However, this issue emerged as an interesting theme for further investigation.

On the other hand, and regrettably, although an existing property of the carrier — realised in the garden — for knitting rooms together into a social circuit seems quite well defined, many aspects concerning the character of outdoor grounds will remain as some of the most blatant research voids in the present study.

A quick glance on the plans shows how designers appear to be meticulously concerned in avoiding garden entrances (linked to the main circuit) to be positioned in the side of the building where service lobbies are located. The convention adopted here to consider the grounds as one space masks the consequences of this omnipresent attitude thus overlooking issues that might prove important as regards patterns of access in these buildings. These could certainly have been illuminated by reworking permeability graphs according to the various routes — garden entrance, traders' entrance, service lobby, etc. — for callers of different status and purposes. Such procedures were unfortunately far beyond time schedule and resources available for the present work

Another flagrant miss is the spatial configuration of bedrooms which seem to be particularly well structured according to the domestic hierarchy of occupants. Another, still, is that of the circulation system itself, that is, of the sub-networks of connecting cells that organise rooms into zones designed for different groups of household members.

Apart from that, a seemingly inexhaustible range of information could certainly have been drawn from the larger sample in terms of social and historic related issues since it comprises country and town mansions, agricultural labourers' cottages and factory workers' terraces, suburban and sea-side residences; creations by the anonymous builder and by architects of the stature of Shaw, Webb, Voisey and Fletcher; watersheds in the history of housing such as Bournville, Letchworth, Hampstead Garden Suburb, Noel Park, Gretna and various Town and City Council housing developments.

However, the aims that triggered the observations developed in this and the previous chapter seem to have been tackled. Those aims may be condensed in one question: *what were late nineteenth and early twentieth century British middle class spatial complexes like ?*, and the answer summarised in one phrase: — *a complex network of circulation spaces branching into function rooms, mostly of the dead-end sort.*

This is certainly no big deal given the amount of references stating the fact, in more or less similar terms. Yet, although this notion seems to be correct configurational nuances unveiled by the investigation of the larger sample and illustrated or clarified through the individual scrutiny of selected cases have shown that there is a lot more to be said about the *cage*-like or *terminal* room of the British home.

Far more important than the acknowledged fact that the transition network constitutes the soul of these house appears to be the ways in which this network is skillfully manipulated in order that differentiated levels of accessibility and of privacy is granted to the various domestic activities and their performers. This seems to be, in fact, the central theme governing the spatial configuration of British homes.

By segmenting and/or uniting lumps of circulation spaces and by linking function rooms to strategically located segments, distinct levels of withdrawal from the hub of movement are ensured and encounter prospects modulated, so that the occupiers of some key spaces may be granted the privilege of both privacy and control of access and can, in many instances, open their doors widely upon other people's goings on, if so desired, whereas elsewhere in the complex, people are secluded to their one cage.

This reputedly very English way of articulating function and transition space not only roots deep into British architectural history but also appears to stretch its branches well into the twentieth century. It has been seen that as far as the body of data in the present study is concerned domestic complexes gradually moved towards more integrating spatial systems. However, this did not necessarily translate into a slackening in levels of structuring which seem to have become even tighter among certain types of dwellings.

The curiosity to investigate the move from a more segregating complex, mostly focused on a family/guests community, to a more integrating and apparently family-centred one, and to have a glimpse at how this move reflected on the way spaces were structured in relation to one another and to the circulation network, led to the examination of some spatial aspects in a small sub-sample of plans published from 1916 to 1930.

4.6. A glimpse forward

Fourteen houses organised according to the inequality genotypes dominant among postwar cases were picked on a more or less random basis, roughly following those criteria used for the identification of the prewar subsample, except that here there was no purpose to restrict collection to middle middle class plans. On the contrary, as the sub-sample of prewar plans was slightly tipped towards the upper side of the social pyramid and because small dwellings constitute the great majority of wartime and postwar plans, it seemed interesting to concentrate collection on the lower housing sector. This, the order of integration among day functions and the availability of information concerning the relation of the building to the public space were therefore the principal restrictions for the selection of cases.

Figures 4.16 through **4.20** show plans and permeability graphs. **Tables 4.4a/b** display general syntactic data of each complex and **tables 4.5a/b** present RRA values for the chief day functions. As in two of the four genotypes represented in the wartime and postwar sub-sample the three functions amalgamate in two rooms, BDF values were not calculated for functional differentiation. This was measured by simply subtracting the RRA values of two cells when a measure of the gap in integration between them was required. **Tables 4.6a/b/c** give the RRA values (from more integrating to more segregating) of all interior spaces in each minimal living complex. In **figures 4.21** and **4.22**, all permeability graphs (rooted from the public space and from a carrier space, respectively) are arrayed according to the size of minimal living complexes.

Selected cases are slightly more segregated (1.509 average mean RRA) and more differentiated (0.831 mean BDF), on average, than the population of cases published after 1914 (1.48 av.mean RRA, 0.833 mean BDF). (**Table 4.4a**). They are also much more fragmented in terms of the proportion of transition to function spaces (1.2 against 1.6 for all post-1914 cases). These aspects and the fact that the sub-sample concentrate on the lower spectrum of the housing universe seem to corroborate earlier findings which indicated that the drift towards more integrated complexes in later times associates essentially with the development of wealthier dwellings.

Tests (T-test, one group, two-tail) comparing average RRA values of main day functions between the selected sub-sample and all post-1914 houses in the full sample indicate that the setting used for eating in selected cases (1.295 av.RRA) is not significantly different (p.=0.7379) from that of all post-1914 plans (1.3 av.RRA) but that main reception rooms are significantly (p.= 0.001) more segregated (1.637 against 1.417 av.RRA) and the spaces where cooking is done significantly (p.= 0.0011) more integrated (1.294 against 1.353 av.RRA). **Table 4.5a** displays these values.

Such differences are expected to happen because the sub-sample was selected to illustrate and complement information about predominant post-1914 genotypes. As has been seen, later complexes become increasingly kitchen-centred/reception-segregated or kitchen-centred/double-reception-segregated.

Selected wartime and postwar plans are all reception-segregated. They comprise five eating-centred/reception-segregated complexes (E>C>R plans) and seven cooking-centred ones that subdivide in three groups: C>E=R (four cases) and C>E/R (three cases). Two further examples combine eating and cooking (by sharing the same space) as most integrated function (E/C>R)

4.6.1. **E>C>R cases**

E>C>R cases represent 13.7% of all plans published after 1914 (**table 3.19**), mostly concentrated in the upper middle class group (29.5%), but also account for 11.5% of cases classified as lower middle class, being specially frequent in the war years.

In the upper cluster this type tends to configure complexes more integrated and less differentiated than the average for all plans published at the time (1.416 av.mean RRA, 0.845 BDF against 1.455 and 0.834 for the period, see **table 3.18**) whereas in the lower sectors, complexes tend to be segregating and little differentiated (1.595 av.mean RRA, 0.847 av.BDF).

E>C>R cases show average mean RRA (1.702) and BDF values much higher than those of any other genotypical group in the sub-sample (**table 4.4a**), thus confirming a configuration trend seen to associate with small postwar dwellings in the full sample. However, their function/transition space ratio (1.3) is higher than that of the sub-sample (1.2) and that of the other groups, but for E/C>R cases.

Four of the six cases have been classified as lower middle class (houses 253, 326 and 351), one as middle middle class (house 263) and one as upper middle class.(house 401).

Four permeability graphs rooted from the public space present the usual circulation core branching into a service branch and into dead-end rooms. The service branch generates a single ring through the carrier, when all entrances are considered. The fifth plan shows a rather different configuration which will be discussed shortly.

House 253 (**figure 4.16a**) is part of a housing scheme for working class dwellers developed by the Port of London Authority[174] and referred to as ... *a*

[174] The Building News, Nov.15, 1916.

lay-out ... on Garden City lines, the houses being of the cottages type. Its permeability graph shows a triple branching of the circulation core into upstairs bedrooms, at a deep level, and a long linear branch which include all day function cells, the living room (space 8) being an obligatory passage to the kitchen/scullery (11) and to the parlour (10) that is located in the rear part of the building.

House 326 (**figure 4.16b**) is part of the City of Leicester Coleman Road Housing Estate.[175] Again, the living room (12) is also a transition space but leading only into the kitchen/scullery (and its accessory cells) this time.

House 351 (**figure 4.16c**) is part of the Stockhill Lane Housing Scheme in Nottingham.[176] The circulation network is very segmented into bends around the staircase so that each bedroom links to its own little lump of transition space. The segregating effect this mode of articulation has is partly counterbalanced (as in the previous example) by the integrating position of space 15, that constitutes the hub of movement in the complex. .

House 263 (**figure 4.17a**) is part of a housing scheme for the Urban District Council in Bolton upon Dearne[177] and had been classified as of middling status. The living room (11) is once again the access route to the long sequence of service spaces that include basement storage cells. The linear sequence of spaces leading to these cells add up to the fragmented circulation network so that segregation is very high (the highest in the sub-sample) although mainly affecting bedrooms and storage spaces.

House 401 (**figure 4.17b**) is a house at Littlestone-on-Sea, designed for a gentleman[178] and has been classified as upper middle class. Its graph albeit presenting the usual long core of transition spaces shows five internal rings plus two external ones when alternative routes are considered. As happens with most prewar E>R>C and some E>C>R cases the dining room (31) lies on a ring and appears to be a key link between the social and the private 'worlds'.

[175] Idem, April 1, 1921.
[176] Idem, Sep.29, 1922.
[177] Idem, Feb.20, 1918.
[178] Idem, Mar.20, 1925.

The logic behind four of these houses' layouts appears to be one of generalised segregation and valued privacy despite the fact that in three of them the room in which meals are taken (labelled *living room*) is also a means of access to other function cells. Contrarily to what has been found in house 159, a prewar cottage in which the through living room constitutes the focus of integration, the above complexes are all transition-centred. The front lobby (space 7) is more integrating than the living room in house 253; two transition spaces head the integration scale in houses 326 and 263 and three in house 351.

The function/transition space ratio shows a lot of segmentation for all cases except for house 401. This does seem to reflect on levels of general integration although not necessarily so. House 253, for instance, has a much more segregating spatial complex than house 326 but the same proportion of transition to function spaces.

The four smaller complexes have in common a high general segregation and a weak differentiation whereas house 401 is much more integrated and differentiated. This example illustrates the strong move towards integration among larger complexes after the war that was indicated in the analysis of the full sample although not presenting the low level of interior differentiation that was also suggested to have accompanied that move.

Permeability graphs show that although in some cases labels were shifted around in the complexes, with living rooms taking the place of a node traditionally occupied by a transition space, spatial structures were not, on the whole, altered in relation to prevailing models found in prewar houses. Besides, deep integration gaps confine some functions to its own access niche. In houses 253 and 351 there is a wide difference in the level of accessibility between the living room and the scullery (**table 4.6a** and **4.6b**). The traditional character of sculleries, usually connected to kitchens in physical terms but deeply distanced from them in configurational terms, was therefore maintained although these rooms have been upgraded from a use associated with dirty chores to the preparation of meals, judging by the representation of gas cookers in the plans. On the other hand, in houses 326 and 263, living rooms and sculleries seem to define together the centre of family life as has been verified in relation to dining rooms and kitchens in some dining room-centred prewar complexes.

In house 401, too, the dining room and the kitchen are much closer in configurational terms than the dining and the drawing room but a significant gap also between those two suggests that the family community relates primarily to the dining room, which bunches together with all first floor bedrooms and nurseries in the centre of the RRA scale (**table 4.6c**), a configuration model already identified in prewar homes. However, in houses 401 and 263 (identified with upper and middling socioeconomic enclaves, respectively) the gap between the settings for eating and cooking is narrower than in all other examples.

All complexes become more integrated when the public space is added but for house 401. In all cases the gap between the main reception room and the room in which meals are taken is narrowed whereas that between the latter and the kitchen is widened. Thus, the anticipation of visitors appears to enhance segregation of the service room.

When the carrier is added all complexes become again more integrated and the configuration distance between receiving and cooking reduced but that between eating and cooking is also reduced in all cases except, again, for house 401, in which it expands. In this house the exterior links directly to the dining room and a ring linking all social-related spaces is defined. The garden is thus incorporated in a family-plus-guests circuit which appears to modify interior boundaries by pushing the kitchen into a less accessible arena.

Although the number of cases involved in the observations above does not render them as statistically representative, findings that emerged from the analysis of the whole data have been confirmed. Among these, a tendency for higher segregation in postwar small complexes and for more integration in larger ones; for complexes to become centred around the spaces where meals are consumed and prepared whereas the main reception room is set aside; for small complexes to be configured according to a model similar to prewar larger homes when this model was no longer in use among the upper sector.

In all other wartime and postwar examples the setting where meals are prepared (or prepared and consumed) constitutes the focus of integration.

4.6.2. **Cooking centred complexes**

Cooking-centred/reception-segregated complexes (C>E=R and C>E/R types) embody 18% of plans published after 1914 in the British sample (**table 3.19**). They constitute 6.8% of upper residences, 32.9% of medium ones and 13.7% of small dwellings, mostly in the C>E/R version which accounts for 50% of houses in which eating and receiving share the same space. Another variation, the E/C>R assembles 63.3% of small dwellings with amalgamated eating and cooking functions.

Postwar C>E=R types, in general, have shown a tendency for configurating some of the most integrating complexes in the full sample with upper middle class ones tending to be also little differentiated and middling ones (as well as small cases, mainly of the C>E/R sort) split between medium and high differentiation (**figure 3.11**). E/C>R cases however, showed a tendency for higher levels of segregation and little differentiation (**figures 3.10/11**).

In the selected sub-sample C>E=R and C>E/R types are, accordingly, the most integrated complexes (1.413 and 1.325 av.mean RRA, respectively). The former group displays the same average measure of differentiation as the sub-sample (0.831 av.BDF) and the latter cluster is more differentiated (0.808 av.BDF), on average (**table 4.5b**). Their function/transition space ratios (1.15 and 1.1, respectively) are, however, very low. Average figures mean nothing for the two selected E/C>R cases since they configure extremely different complexes in terms of the relationship between integration and differentiation, one being very integrated, differentiated and economical in transition spaces, the other showing an inverted situation.

When the street and, specially the carrier is considered, all clusters become more integrated

Permeability graphs generate the usual backbone structure of transition spaces but in some cases the living room (for eating or for eating and cooking) controls access to other function cells. When linked to the carrier two cases present a social circuit besides the usual service ring.

The only shifting in genotype in the subsample affects C>E=R complexes which may become cooking-centred/eating-segregated when the carrier is added. Thus whereas in prewar houses the kitchen-integrated model reverted into a reception-integrated (or double reception-integrated) one in two cases, post-1914 C>R>E types remain kitchen-centred even when one of the reception rooms link to the carrier, a fact that stresses the upgrading of the setting used for cooking into the limelight of domestic access, as verified.

All four C>E=R cases (houses 357, 419, 449 and 470) were considered as middle middle class and C>R/E (houses 399, 457 and 481) as well as E/C>R ones (houses 331 and 332) as lower middle class.

House 357 (**figure 4.18a**) is a house in Welwyn Garden City.[179] Its compact design translates into an also compact permeability graph whose transition core splits at a shallow level into a flock of ground floor rooms, all linking to the same transition segment (15) and, again, at the top into upstairs bedrooms. This instance is a very good example of an integrating/low differentiated complex in which whatever goes on in the ground floor area (but for the toilet room 16) is only and always two steps away from the next setting.and even the upstairs rooms are nearly as accessible as they could be.

House 449 (**figure 4.18b**) is a building at Bourne Hill, Southgate.[180] The three chief day rooms link to a same segment (11) but less integration is achieved due to the fragmented transition circuit on the first floor and to a linear sequence of cells in the service branch. Differentiation in the system is also high with some spaces directly connected to a central circulation node while in for others, access to the circulation core (spaces 9, 10 and 11) is controlled by intervening spaces.

House 470 (**figure 4.18c**) was erected on the Brook Street Hill Estate, in Brentwood, Essex.[181] Again a long service branch and function rooms being linked to different transition segments contribute to reduce accessibility and

[179] Idem, Feb.16, 1923.
[180] The Builder, Dec.30, 1927.
[181] Idem, Feb.15, 1929.

increase differentiation.

House 419 (**figure 4.19a**) was erected, in 1925, on the Mount Arrarat Estate, in Wimbledon.[182] The long branch and the splittings of the circulation spine in different points, specially in extreme ones, contribute to a most spaces are fairly detached from all others. Integration is thus medium and differentiation very low.

House 331 (**figure 4.19b**) is a bungalow ... *built with 'interloc' bricks* [183] in Spalding. This is a kind of guidebook on how to achieve maximum differentiation between two adjacent spaces in a small complex which is also very economical in terms of its circulation network, or else, on how to integrate everybody and segregate just one space without renouncing compactness. The living room is the most integrating space of all whereas the parlour is the most segregated.

House 332 (**figure 4.19c**) is another dwelling to form part of a total of 250 cottages on the Coleman Road Housing State.[184] Despite having been supposedly designed for the same class of inhabitants, of being both cooking-integrating/reception segregated complexes and of presenting a living room which also function as a transition space, this and the previous case could not be more diverse in configuration terms. Here the lesson seems to be on how to achieve maximum isolation for nearly every space. Although living room and parlour link to a same segment, the linear sequence of service-related cells linked to the former and the winding chain of circulation spaces which connect the upper floor seem to be the clue for fairly accessible living room and core transition spaces (14, 16 and 7) amidst a constellation of segregated cells.

House 481 (**figure 4.20a**) is part of a design for a housing scheme in a mining district submitted to the RIBA as a testimony of study.[185] Its access graph shows that although function spaces link to different segments a balance in accessibility was reached since no long chains of intermediating transition spaces, other than the circulation core (14, 11 and 7) sets rooms apart. The

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[182] Idem, Sep.17, 1926.

[183] The Building News, Apr. 29, 1921.

[184] Idem, May 20, 1921.

[185] The Builder, Feb.7, 1930.

configuration is thus quite integrated and very little differentiated.

House 399 (**figure 4.20b**) is part of a scheme for a close of twelve houses at Byfleet, Surrey, for the Chertsey Rural District Council.[186] Here a fairly compact circulation system is counterbalanced by the service branch. The result is a very integrating complex with segregated bedrooms and store cells.

House 457 (**figure 4.20.c**) is part of the Grove Park Housing Scheme in Lewisham.[187] Its structure generates a fairly strong differentiation but segregation is again restricted to bedrooms, toilet/bathrooms and storage cells whereas both day rooms — scullery and living room — link directly to the hub of movement (14).

The transition-space-centred model is, as always, very much evident among these houses. Two transition segments heads the RRA scale (**table 4.6**) in house 399, three in houses 470, 332 and 481, four in houses 357, 419 and 457 and five in house 449. The only function-centred complex is thus house 331.

The relation between transition fragmentation and less integration is generally strong although upset in some cases. For example, house 357 has a lower function/transition ratio than house 449, yet the former complex is more integrating than the latter and houses 481 and 399 have the same proportion of transition spaces but, again, the second of the two presents more general integration.

In some houses the centre of functional integration and the other day room (or rooms, in C>E=R types) are far apart in terms of accessibility signalling a strong opposition between family and visitors (331, 481 and 470) . But in most cases (419, 399, 357, 449 and 457) the layout seems to encourage the merging of day activities, a suggested strong trend in cooking-centred complexes. As 'merging' types embody three out of the four middle middle class cooking-centred dwellings and two of the three 'nonmerging' ones are lower middle class, the tendency for higher integration in larger postwar houses is, again, confirmed.

[186] The Building News, Feb.20, 1925.

[187] The Builder, Apr. 27, 1928.

When the minimal living complex is linked to the street by the front door the integration gap between the kitchen and the social sphere reduces in all C>E=R and C>E/R cases as does that between the living room and the main reception room in E/C>R cases, showing a tendency to reduce the segregation of the main reception room when the presence of visitors is considered.

The inclusion of alternative routes reduces the inhabitants versus visitors distance in most cases (331, 332, 449, 470 and 449) but increases that in houses 357, 399, 419 and 457. As two of these are middle middle class this might be, again, a suggestion that the carrier contributes to diminish the level of accessibility of the kitchen.

The repeatedly acknowledge fact that varying modes of articulating functions and people lie behind the apparent similarities of transition-space-centred complexes even when they share a common functional genotype seems to have been once more emphasised. Also confirmed was the increasing importance of the space used for cooking in later British homes. Eight cooking-centred cases were examined in the prewar sub-sample and seven (or nine, provided E/C>R types are considered as such) in the post-1914 sub-sample. In two prewar cases the model reverted into a reception-centred one when the exterior was added whereas in the later sub-sample, although two genotypical alterations have also occurred, all cases remained kitchen-centred regardless of the way complexes were approached.

Despite the reduced scope of both sub-samples, the fact that these observations are strongly backed by findings drawn from the analysis of the full sample appears to demonstrate beyond doubt that kitchens do take over other day activities as the locus of domestic integration in postwar British homes.

4.7. <u>**A move backwards**</u>

The study of British houses started out with a few questions and no hypothesis and has accumulated quite a number of suggestions and at least one hypothesis: that the migration of the main service room into the focus of functional interaction, the reduction of transition segmentation and the increase in general levels of accessibility within the spatial complexes of postwar British houses are consequences of the substitution of servants by the housewife who once having moved into the kitchen was not contented with being cut off from the family/social sphere and demanded more accessibility to her main daily headquarters. This being, as verified, a stronger tendency among upper and middling dwellings may perhaps associate with a more powerful role, as concerns decisions about the house layout, exercised by housewives in wealthier sectors. It may also relate to notions of 'social propriety', dictating that guests and cooking do not mingle, that might have been more deeply entrenched within lower enclaves.

These assumptions will, regrettably, remain unchecked. However, the transference of the focus of integration to the setting designed for cooking after 1914 and specially after 1923 matches textual references as to the period of the decline in domestic servants.

Alan Jackson[188] states that although... *in the decade before 1914 domestic assistance became increasingly difficult to secure on a London suburban income ... this change was not really marked until the war years.*

The absence of servants is also stressed by Chapman[189] who sees this as a crucial factor to reduce the polarity between the reception room and the main service room. He also acknowledges the time lag taken for reworking the configuration to meet the new requirements.

The social structure of the family with servants created two or more homes within a single house and left permanent marks on our domestic architecture — the contrast between the kitchen and the living-room, for example. ... in the recent past the housewife who did her own work had for a long time to put up with a standard of comfort, ... 'fit' only for a servant. Domestic architecture has lagged behind social change.

The author states further on that the decline in domestic service has ... *probably been a major factor in controlling the size of middle-class dwellings and the complexity of family life within them. Middle-class dwellings now*

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[188] Jackson, op.cit, p.47

[189] Chapman, op.cit., p. 19.

contain only kin, and are designed to be worked by the housewife with perhaps a small amount of assistance. And this, he adds... *may partly account for the decline of formal behaviour in the middle-class home .*[190] This supposition seems to match closely the pattern of an increasing general interlocking of activities in most postwar plans but specially among upper sectors.

But why is it that a most integrated kitchen (when a space specifically designed for cooking was available) was not the dominant trend in prewar working class or lower middle class dwellings, where there had never been servants? As seen, small houses in which chief day functions did not overlap tended to be eating-centred, a trend dominating among upper middle dwellings. Could this be a consequence of such houses being designed by members of this class who sought to reproduce their only domestic spatial logic, shrank to lilliputian proportions, in working class homes or did it have to do with the preferences and prejudices fed by the upper class on lower class housewives?

The dissemination of modes of domestic behaviour down the social ladder is seen by some authors as an important factor in the way working class homes reproduced features current in wealthier homes. Chapman notes that ... *up to the ... War a high proportion of all working-class women living outside the great areas of women's industrial employment spent several years before marriage living in the homes of the middle and upper classes as domestic servants, ... in contact with middle-class manners and modes.* [191]

After the war small dwellings become massively centred in the kitchen/living room but as this had always been a powerful trend in this group, this tendency does not appear to characterise a turning point towards a family centred spatial logic as verified in upper and middling residences.

However, not all had changed. A glance on **figures 4.21** and **4.22** shows the structure of postwar houses to be, in general terms, almost identical to prewar ones: the old fish-backbone of transition spaces with dead-end reception rooms and a service branch springing from a transition space at a low depth level and with bedrooms constituting deeper branches. The model

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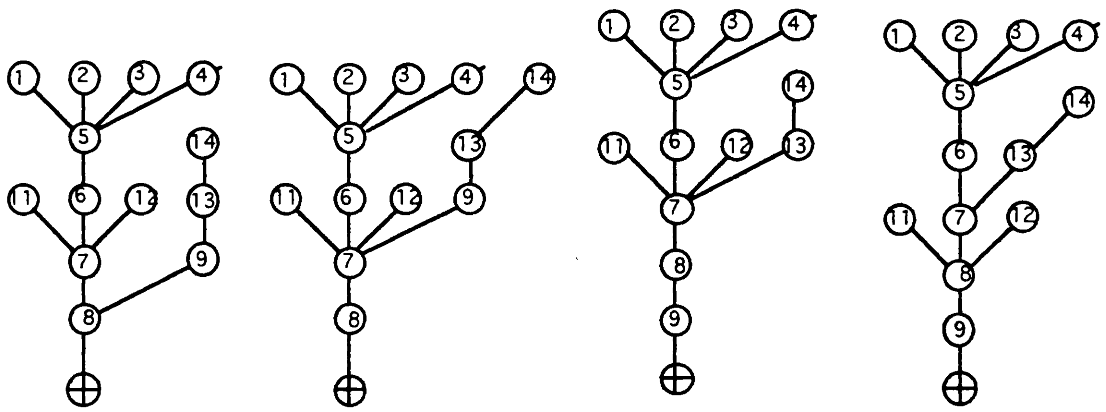
[190] Idem, pp. 52-53

[191] Idem, p.20.

finds its way through even in single-storeyed complexes such as that in house 331, whose permeability graph defines the same structure, although obviously shorter. When all routes are considered in each and every case, the service branch folds into a ring through the carrier so that the trunk of the tree springs from that ring. Very much the old prewar theme.

Two subtle structural movements appear to lie behind the shift towards kitchen-centred models: 1) the service branch tend to link to a central segment in the circulation core, often the same that connects the reception rooms or its neighbour, one level deeper; 2) intermediate spaces between the central core and the kitchen tend to disappear. Thus, as graphs become more compact, with fewer fragmented lumps of transitional spaces, and kitchens more centrally located in relation to the whole complex, the reception-centred/kitchen-segregated models reverts into a kitchen-centred/reception-segregated one.

The permeability graphs below could, in theory, have been generated by a house plan with dots 1 through 4 representing first floor bedrooms and a bathroom linked by the landing (5). The staircase is represented by dot 6. Dots 7, 8 and 9 are ground floor transition spaces and the main reception room, the dining room and the kitchen are numbers 11, 12 and 13, respectively, with space 14 being a service space (scullery, lobby, larder) of some sort.



a b c d

In the first graph (a) the reception rooms spring from a core segment, the service branch from another, and a transition space (9) controls access to the kitchen. Variations of this structure were frequently found among prewar houses. It is double-reception-centred/kitchen-segregated with a mean RRA value of 1.428. The two reception rooms share a 1.345 RRA value and the kitchen (1.826) lies a long way down the integration scale.

If the service branch is linked a level deeper (b), the mean integration increases to 1.284, that of reception rooms to 1.201 and the gap between these and the kitchen (1.49 RRA) is greatly narrowed. If space 9 is shifted around and the kitchen is directly connected to the circulation core (c), the mean integration does not alter nor does the level of accessibility of the reception rooms but the kitchen now has a 1.105 RRA value. The genotype has thus shifted from a E=R>C to a C>E=R model. If the reception rooms (or one of them) are moved down the circulation core, the gap between them and the kitchen is widened (to 1.49 and 1.201, respectively) and the mean integration becomes 1.366.

In 'real life' however, it has been seen that when the kitchen moves into the integration focus, the mean integration tend to increase not decrease. The usual manoeuvre to achieve this is thought to be the elimination of one (or more) transition spaces. Something like skewing space 9 in the hypothetical graph since it has lost its original function of screening the kitchen from the hub of movement. If this is done, the mean integration increases to 1.336 and if the two reception rooms are again linked to space 7, the average accessibility increases still, to 1.218. Such schemes are thus, in very simplified terms, what is thought to have been the key for some important alterations in British spatial complexes across time. Nothing other than a clever strategy capable of revamping the whole system without subverting its essential nature. Very little had changed.

Very little *has*, in fact, changed, judging from current research on entirely diverse data: *The justified graphs of these houses ... reveal that, despite their apparent stylistic variety, the houses seem almost identical to each other from a configuration point of view. All are deep, tree-like space configurations which spring from one shallow ring which passes through the house plot.*

The paragraph above does not refer to any of the examples in this work or to nineteenth century or early twentieth century houses as might be expected. It is a description, by Julienne Hanson,[192] of the permeability graphs generated by plans of houses recently built in Milton Keynes. Four houses illustrate the study:

... all four houses separate household activities into living, eating and entertaining downstairs and bathing and sleeping upstairs. The major living areas invariably occupy separate rooms off a common hall. The kitchen has a separate utility room in sequence and connected to the outside for laundry and dirty activities [a new guise for the old scullery]. *The formal entry to the house is elaborated into a porch* [usually ruled out from the present study which does not consider semi-open spaces] *and interior lobby sequence, ... wherever possible, circulation areas are separated from rooms, and groups of rooms are separated from each other by chicained halls and landings so that small houses appear large, and large ones labyrinthine. This way of configuring the domestic interior is found throughout Britain today. Small houses aspire to it, and large houses elaborate on it.*

The most integrating spaces in these houses are, according to the author, transitional and the most segregated are the utility room and toilet rooms. Furthermore (and not a bit surprisingly), in three of the four mentioned houses the pattern of functional integration ranks C>E=R. Things could not have changed less!

Michael Shoul[193] analysed a group of forty-five apartments in London whose interior layout ... *was created by their occupants through ... participation in the design process.*

An accommodation analysis of all 45 apartments showed that, wherever space allowed, the plans contained two social spaces: rooms where inhabitants could gather all together or with outsiders. In 88% of these cases the RA measures showed that one of these — never the kitchen or kitchen/dining room — always the living room had a greater value. This nonintegrating room was always located in a special position in the plan where it would serve the functions traditionally associated with the idea of an English parlour or 'best room'. They are never located either at the hub of

[192] Hanson, J. op.cit.,1992, p.144

[193] Shoul, M., op.cit, p.23.

movement or on some pathway of accessibility within the house [194] .

The pattern opposing inhabitants to a more formal locus of interface that is shifted away from the hub of movement was found to be very frequent in prewar houses and predominant in postwar times, specially in smaller complexes. Thus, Hanson's analysis of contemporary houses, with a room for each of the three main functions revealed the dominant pattern found for middle middle class postwar house and Shoul's insight on two-roomed houses showed a prevailing trend among small dwellings in the sample from the last decades of the previous century.

It appears then that if the interlocking of functions and spaces conjured by the modernist dream ever challenged the long-prevailing transition-space-centred logic of British homes this did not go far beyond a short *intermezzo* in a much stronger orchestration, deeply rooted in the very British soul. The open-plan of the *International Style* is nowhere to be seen. The modernist dream appears thus to be over and things are back to normal, or perhaps it could be said, back to British.

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[194] Idem, p.51.

CHAPTER 5

AN INTRODUCTION TO HOUSES OF RECIFE

This chapter acquaints the reader with Recife and its housing panorama from colonial times the eve of the outbreak of modernism . It outlines, in brief strokes, the general characteristics of colonial dwellings and settlements as well as the novelties which contributed to alter their contours from the mid-nineteenth century to the fourth decade of this century. From then on the geometrical bareness of modernism sifted down to the vernacular world and together with the ubiquitous block of flats, began to reshape, this time much more radically, the residential boroughs.

The necessity to include an introductory chapter to the housing panorama of Recife is also a consequence of the information available about these buildings which determined that the paths for constructing the two bodies of data — the British and the Brazilian sample — should follow opposite directions. Whereas abundance of dated British plans allowed for an extensive examination of their spatial layouts before any attempt to define categories across time and class was undertaken no such material was available for houses in Recife. Specialised periodicals did not exist at the time, historical surveys on house plans were restricted to a few listed buildings and the compulsory submission of working plans to licensing offices was not introduced until well into the twentieth century. Besides, most of what constituted the pre-modernist townscape had been erected by builders from makeshift plans, if any, which could not be located.

In order to overcome the problem it was decided that the plans that comprise the sample of pre-modernist houses of Recife would be restricted to those whose buildings had survived destruction at least as far as the mid-80's, when a survey[196] of dwelling buildings in areas developed from the mid-nineteenth century to the 30's revealed the existence of over sixteen hundred houses located in and around the neighbourhood of Boa Vista and along the valleys of the rivers Capibaribe, Beberibe and Tejipió, former sites of country estates and

[195] Trigueiro, 1988 op.cit.

holiday residences. These buildings, by having been recorded in photography and according to type of occupation on the plot, shape of built shell and stylistic treatment of main façade, allowed for a fairly accurate dating.

The strategy initially contemplated for constructing the data was to identify a representative sub-sample among the houses recorded in the referred survey and draw their plans on site. This task was spared when it was discovered that many of those buildings had had their plans sketched, from the first decades of this century onwards, for the purpose of being linked to the water supply and sewage systems and that a significant number of those drawings had survived time and neglect in the archives of the public office presently in charge of these services, as referred in chapter 1. The material, albeit extensive, could not however be used on its own since the plans had all been drawn *in loco* , with no indication of time of construction and no elevations, sections or textual descriptions which might have helped a less chancy estimate of their age. Thus, it was decided that the plans collected from the cited archive would be those of the houses identified in the 1985-88 survey.

Therefore in order that colonial and post-colonial architecture can be understood and the plans to be analysed in the next chapters assigned fairly accurate time niches, the study of pre-modernist dwellings departs from a general sketch of the main aspects that characterise, in morphological terms, these successive periods and their various guises. Furthermore, because the move from one period to the other is intimately associated with the process of urbanisation in Recife, a brief examination of this process will be attempted.

5.1. **Earlier times**

Recife is referred by Frei Vicente do Salvador[196] in his *História do Brasil (1500 a 1627)* as a small village of two hundred people, the parish church of Corpo Santo, many grocery stores and taverns and the warehouses where the sugar containers were stationed before being loaded on ships. The date of the author's writings is uncertain but it is believed that his mention of sugar warehouses in the plural (which he terms as *passos*) refers to the late

[196] Salvador, Frei Vicente do. História do Brasil. Melhoramentos, São Paulo, 1965 (referred edition), p.128.

sixteenth or early seventeenth century when sugar was already being produced in 66 mills in Pernambuco, according to Dantas Silva[197].

The Portuguese colony of Brazil was divided, soon after its *discovery* in 1500, into hereditary tracts of land, or captaincies — the *capitanias* — of which Pernambuco became one of the two main focus of sugar production and its capital Olinda, one of the most prosperous towns in the colony. The little harbour at the mouth of the river Beberibe and at the foot of the hill crowned by haughty Olinda soon ceased to offer satisfactory conditions for the flow of sugar exports. A little further south down the coast, a reef — *arrecife* or *recife* — running in a continuous line along the shore, defined a natural harbour of good proportion that met the needs of the sugar trade. The reef lent its designation to the hamlet developed around the port, clumped in the narrow strip of swampy land, squeezed between the sea and the estuary formed by the rivers Capibaribe, Beberibe and Tejipió.

Thus, arising from the marshes, the so-called *Povo do Recife* (people of the reef), mainly inhabited by longshoremen and sailors, their families and camp-followers, blossomed amidst mangrove and white sand. An estimate seventy houses were, according to Mota Menezes[198] found in the site by the Dutch invaders in 1631. These would have formed rows of low buildings already densely packed together and not nearly capable of accommodating the two sets of new-comers: the invaders and the people fleeing Olinda, set afire during the invasion struggles. **Figure 5a** shows the hamlet facing the reef and the village of Olinda in 1631[199]

The serious shortage of housing as well as of grounds led, at an early stage, to successive earthworks that would enlarge the narrow strip of soil and to the verticalization of the built environment. The tall buildings of Recife, depicted in sketches by Dutch artists a few years after the occupation, would, according to some authors, have been the precursors of the slim multistoried house

[197] Silva, Leonardo Dantas. Recife: uma história de quatro séculos. Prefeitura do Recife-SEC, Recife, 1975, p.20

[198] Menezes, José Luiz Mota, (editor). Atlas histórico-cartográfico do Recife. FUNDAJ-Massangana, Recife, 1988, pp.17-18.

[199] *Povo do Recife e Vila de Olinda*, in Loureiro, Claudia & Amorim, Luiz. Uma cidade se inventa, Recife, 1994. (Orig. *Porto e Barra de Pernambuco* in Atlas de J.Teixeira Albermaz I, Portugaliæ Monumenta Carthographica)

(*sobrado magro*) which surprised many a foreign traveller of later times. Oliveira and Galhano[200] state that of the two hundred and ninety buildings recorded in Recife by the royal storekeeper after the Portuguese victory over the Dutch, around two hundred had two storeys and fifty others had three, all fully occupying the 4.8 to 7.4 meters wide frontages.

The lack of building space in Recife was partly overcome by the occupation of the island of Antonio Vaz (or *Ilha dos Navios*, as shown in the above referred map), located in the estuary of the three rivers, west of the peninsula. Chosen by Prince Maurice of Nassau, who arrived in Recife in 1637, as the site for erecting the Mauritzstaad — administrative centre of the Dutch State in Portuguese America — the semi-deserted island was drained, fortified and erected into what Robert Smith[201] considers as the first settlement to deserve the denomination of *city* in the colony. The new settlement boasted broad regular thoroughfares, canals and embankments, gardens, two palaces and two bridges: a much awaited-for and disbelieved first bridge linking the huge span between the island and the peninsula, and another, at the opposite side, linking the island to the continent (**figure 5b**).[202]

Franz Post has depicted Mauritzstaad on canvas dated of 1657. Broad façades punctuated by many windows and doorways feature amidst the exuberant tropical vegetation. Hipped roofs alternate with stepped gables often associated with traditional Dutch architecture which, according to Smith[203] was greatly modified or completely overruled due partly to climatic differences, partly to the influence of Luso-Brazilian models.

Although vestiges of the Dutch occupation can still be identified in the regular wide grid of some areas of the island which contrasts sharply with the labyrinth of winding lanes that form the old cores of most colonial towns and various parts of the present Recife, no buildings from the time of the Dutch has knowingly survived. Whatever remained after the fierce struggle for expelling

[200] Oliveira, Ernesto V. & Galhano, Fernando. Casas esguias do Porto e sobrados do Recife. Pool Ed., Recife, 1986, p.20.

[201] Smith, Robert. *Arquitetura civil no período colonial* in Arquitetura Civil I, FAUUSP-MEC/SPHAN, São Paulo, 1975, p.137.

[202] *Cidade Maurícia, 1648.* In Loureiro&Amorin, op.cit. (orig. in *Mapa do Recife* by Cornelius Golijath).

[203] Smith, op.cit., p.140.

the invaders was later demolished, reconstructed or altered beyond recognition.

To the southwest of the island successively known as Ilha dos Navios, Antonio Vaz, Mauritzstaad and (after the Dutch)Santo Antônio, a new settlement began to take shape in the continent, facing Nassau's summer residence, *Palácio da Boa Vista*, from which what would constitute the first suburb of the city derived its name. Beyond this settlement, in the areas which comprise the bulk of the present city, along the valleys of the three rivers, sugar cane crops stretched amidst the exuberance of patches of sub-tropical forest, punctuated by little hamlets developed around sugar mills and warehouses, plantation seats and farmsteads, or along the roads linking these to the town centre.

Figure 5c[204] shows the three settlements of the town in 1749 and in **figure 5.d**[205] , it can be seen that in 1827 Boa Vista had development into the first suburb of the town. **Figure 5.1** (c.1876) gives a measure of the urban growth along the nineteenth century and shows various settlements scattered around the town, specially along the banks of the Capibaribe that winds its way northwards in the centre of the map.

5.1.1. **Impressions**

The former *Povo do Recife* albeit outshone by the refined urban treatment lavished over the administrative centre of Mauritzstaad, spanned the period of conquest (1630-54) as the economical centre of the Dutch State. An obligatory route for the sugar production, for all goods coming in and out of the conquered *capitanias* and for the trade between these and the Dutch colonies in Africa, the old settlement also became a religious centre with its parish church fashioned into the invaders' Calvinism and the first synagogue to be built in Latin America.

The next century brought in increased prestige, edification and grounds. Earthworks nearly tripled the narrow peninsula, new buildings included

[204] *Vila de Santo Antônio do Recife*, in Loureiro&Amorin, op.cit., (orig. *Planta genográfica da Vila de Santo Antônio do Recife de Pernambuco*, Arquivo Histórico Ultramarino).

[205] Idem, *Cidade do Recife*, (Orig. *Plano do Porto e Praça de Pernambuco* by Pedro Cronenberger).

churches, state offices and fortresses. From the second half of the eighteenth century the area was again fully occupied and vertical growth seen as the natural solution. A routine stop between the European ports and Rio de Janeiro, Recife became a common theme in the diaries of foreign travellers who flowed in increasing numbers after the transference of the Portuguese State to Brazil in 1808.

Henry Koster[206] describes the oldest part of the town in 1809: *The town of Santo Antonio do Recife, commonly called Pernambuco, though the latter is properly the name of the captaincy, consists of three compartments, connected by two bridges. A narrow, long neck of sand stretches from the foot of the hill, upon which Olinda is situated to the southward. The southern extremity of this bank expands and forms the site of that part of the town particularly called Recife, as being immediately within the reef. There is another sand-bank also of considerable extent, upon which has been built the second division, called St.Antonio, connected with that already mentioned by means of a bridge. Yet a third division of the town remains to be mentioned, called Boa Vista, which stands upon the main land and to the south of the other two, and is joined to them also by a bridge.*

The first division of the town is composed of brick houses of three, four, and even five stories in height; most of the streets are narrow, and some of the older houses in the minor streets are of only one story in height, and many of them consist only of the ground-floor.

Koster does not fail to notice the vestiges of the Mauritzstaad imprinted in the built environment of Santo Antônio, judging by his impression of greatness, gaiety and livelihood, although the relation between the height and the width of some of the buildings in the area strikes him as lacking proportion. *St. Antonio, or the middle town, is composed chiefly of large houses and broad streets; and if these buildings had about them any beauty, there would exist here a certain degree of grandeur: but they are too lofty for their breadth, and the ground-floors are appropriated to shops, warehouses, stables, and other purposes of a like nature.... it comprises several squares, and has, to a certain degree, a gay and lively appearance. This is the principal division of the*

[206] Koster, Henry. Travels in Brazil, Longman/Hurst/Rees/Orme, and Brown, London 1817. pp.6-9

town.[207]

Very little has he to say about Boa Vista with its principal street ... *broad and handsome: the rest of this third division consists chiefly of small houses, and as there is plenty of room here, it extends to some distance in a straggling manner. Neither the streets of this part of the town nor of St. Antonio are paved.*[208] This part of the town would soon be described in quite distinct colours as shall be seen.

Beyond Boa Vista the contours of most of what constitutes the present Recife were by then already delineating with the formation or thickening of settlements along the margins of the three main rivers. The practice of moving temporarily to areas along the rivers during the summer months, was, according to Koster's account, in full swing in the early nineteenth century. Summer cottages sprinkled the landscape as the author, riding in the neighbouring areas of the town, ... *passed through Boa Vista, and proceeded along a narrow sandy road ... along the sides of this are many of the summer residences of the wealthy inhabitants of the town, which are small, neat, white-washed cottages of one floor, with gardens in front and at the sides, planted with ... fruit-trees; ...*[209] He later states that although his riding took him to a distance of six or seven miles in the neighbourhood of the town, he never reached beyond those summer dwellings.[210]

The summer vacation, referred to as *festas* , by including Christmas, New Year and the festivities immediately prior to Lent (forerunners of the present-day Carnival), represented, according to this and various other sources, a break in the seclusion of the lifestyle and of the severity of habits, common in Recife at the time. Koster, who enjoyed one of these seasons in a village by the river Capibaribe reports:

The village was quite full; not a hut remained untenanted; and, as occurs in England at watering-places, families, whose dwellings in town are spacious and handsome, regardless of inconvenience, came to reside here during the

[207] Idem, p.10
[208] Idem, p.11
[209] Idem, p.18
[210] Idem, p.40

summer in very small cottages. ... Here the ceremonious manner of the town are thrown aside, and exchanged for an equal degree of freedom. Our mornings were filled up, either in riding to the [sic] *Recife or in conversation at the houses of any of the families with whom we were acquainted; and the afternoons and evenings with music, dancing, playing at forfeits, or in dining with some of the English merchants, a few of whom had also removed to this place and its neighbourhood.*[211]

The above description contrasts vividly with his first impression of the town and with the introvert character and general lack of social refinement. of the colonial society depicted in earlier notes that do not hide the writer's disapproval.

... an acquaintance of my fellow-passenger obtained some temporary rooms for us, and supplied us with what we wanted. We are therefore at last quietly settled in our new habitation, if I may be allowed to call it quiet, whilst some twenty black women are under the window bawling out, in almost all tones and keys of which the human voice is capable, — oranges, bananas, sweetmeats, and other commodities, for sale.[212]

Some few of the windows of the houses are glazed, and have iron balconies; but the major part are without glass, and of these the balconies are enclosed by lattice-work; and no females are to be seen, excepting the negro slaves, which gives a very sombre look to the streets. The Portuguese the Brazilian, and even the Mulatto women, in the middle ranks of life, do not move out of doors in the day-time; they hear mass at the churches before day-light, and do not again stir out, excepting in sedan chairs, or in the evening on foot, when occasionally a whole family will sally forth to take a walk.[213]

However, in what reads now as sheer perspicacity he acknowledges this state of events to be undergoing a very rapid process of change:

... no rule can be laid down for the society of the place in question; families of equal rank, and of equal wealth and importance, are often of manners totally different. The fact is, that the society is undergoing a rapid change; not that

[211] Idem, pp.21-22
[212] Idem, p.7
[213] Idem, pp.11-12

the people imitate European customs, though these have some effect, but as there is more wealth, more luxuries are required; as there is more education, higher and more polished amusements are sought for; as the mind becomes more enlarged, from intercourse with other nations, and from reading, many customs are seen in a different light; so that the same persons insensibly change, and in a few years ridicule and are disgusted with many of those very habits, ... practised but a short time before by themselves.[214]

....The gentleman, chiefly by whose kindness I had been introduced ... to the society of Pernambuco, was among the first British subjects who availed themselves of the free communication between England and Brazil, and he even already observed a considerable change of manners in the higher class of people. The decrease in the price of all articles of dress; the facility of obtaining ... earthware, cutlery and table linen; in fact, the very spur given to the mind by this appearance of a new people among them; the hope for a better state of things, that their country was about to become of more importance ...[215] These and other newly-introduced facilities are some of the factors triggering behavioural change in the author's views.

Koster's disgust relating the current *state of things* in Recife's town life was perhaps the paramount reason for his becoming a precursor among those who chose to trade his lodgings in the inner city for a permanent residence in one of the neighbouring hamlets, having moved there still during the rainy season which in that year had been, he reckons, particularly mild.

The villages are at this time very dull, having people of colour and negroes as residents almost exclusively. However, as I was fond of the country, I was tempted by the fineness of the weather to remove entirely to a small cottage in the vicinity, where my time passed away pleasantly, though quietly, and in a manner very barren of events.[216]

Although there are no reasons to disbelieve Koster's professed love for the countryside, least for his being an Englishman, several passages in his writings, as quoted above, convey the impression that more urgent than his

[214] Idem, p.38
[215] Idem, pp.43-44
[216] Idem, pp.40-41

longing for the scent of dew on blossom leaves was his desire to escape the roughness of the colonial urban environment. This seems to have altered significantly in a very short time, judging from Koster's description of the town centre in 1812, when he returns to Recife after a brief stay in England.

I perceive a considerable difference in the appearance of Recife and of its inhabitants, although I had been absent from the place for so short a period. Several houses had been altered; the heavy sombre lattice-work had given place, in many instances, to glass windows and iron balconies. Some new families had arrived here from Lisbon, and three from England; the ladies of the former had shown the example of walking to mass in broad day-light; and those of the latter were in the habit of going out to walk towards the close of the day, for amusement. These improvements being once introduced and practised by a few persons, were soon adopted by some, who had been afraid to be the first, and by others who found that they were pleasant..

The country-residences which had been lately built, were also numerous; lands in the vicinity of Recife had risen in price; the trade of brick-making was becoming lucrative; work-people were in request; and besides many other spots of land, the track between the villages of Poço da Panella and Monteiro, in extent about one mile, which in 1810 was covered with brushwood, had now been cleared; houses were building and gardens forming upon it.[217]

Yet, Tollenare[218] writing four years on, in 1816, stresses the sad-looking latticed screens[219] still extant in the houses of Recife which he describes as being from two to four storeys high. On the other hand, the city appears to have expanded and improved in urban terms. He praises Boa Vista as the gayest and most modern part of town with its paved streets and its beautiful houses of wealthy people. He considers handsome and solidly built the summer residences surrounded by hedges of jasmine, orange and passion fruit.[220] and describes a plantation *casa-grande* as a building raised above pillars at ground level

[217] Idem, p.297

[218] Tollenare, L.F. Notas Dominicais, SEC, Recife, 1978 (referred edition), p.20

[219] These elements, also referred to as *muxarabis* and generally thought to have been of Moorish influence via Portugal, are to some, one of the various instances of Portuguese architecture adapted to the tropics, and to other, a means of safeguarding women from the street, an almost exclusive domain of men and slaves.

[220] Tollenare, op.cit.pp.101-102

which encloses the service quarters and the access area to the residential zone.[221]

Maria Graham who chanced to witness the struggles for autonomy in Pernambuco on her way to Rio de Janeiro in 1821 describes a quite diverse picture from that outlined by Koster little more than a decade before, although the singular circumstance of a town under siege and the relatively short time of her permanence (less than two months) renders her impressions less reliable than those of her fellow countrymen as can be perceived by her slightly muddled account of the origins of the town:

The name of Pernambuco, which is that of the captainship, is now generally applied to the capital, which consists of two parts; first, the city of Olinda, which was founded by the Portuguese, under Duarte Coelho Pedreiro, about 1530 or 1540, and ... second, the town of Recife de Pernambuco, or the Reef of Pernambuco, built by the Dutch, under Maurice of Nassau, and by them called Maurice Town. .... and Boa Vista, where the richer merchants, or more idle inhabitants, live among their gardens, and where convents, churches, and the bishop's palace, give an air of importance to the very neat town around them.[222]

The founder of Olinda was Duarte Coelho Pereira (not *Pedreiro*) and this town, although greatly overwhelmed in importance by Recife at the time, was still *the capital* not *part* of it. Besides, the *Povo* of Recife (and its rich port) was already a main target for the Dutch who took great pains in order to conquer it well before Nassau ever set foot in the country. She later refers to a Miss S. as ... *the only English lady in the town*[223], a quite surprising statement after Koster's, and various written accounts have either explicitly mentioned or led to the impression that among the British subjects in the town a considerable number of English families could be found. Her views on the appearance and the type of inhabitants of Boa Vista — at least of its principal streets —, however, finds support in cartographic and textual records of the epoch.

About dwellings in Recife she says that ... *the houses are three or four stories high, built of a whitish stone, and all are white-washed, with door posts and*

[221] Idem, pp.68-69.
[222] Idem, p.100.
[223] Idem, p.105.

window-frames of brown stone. The ground floor consists of shops, or lodging for the negroes, and stables: the floor above is generally appropriate to counting-houses and ware-houses; and the dwelling-house still higher, the kitchen being universally at the top, which means the lower part of the house is kept cool.[224]

However, if the following observations are correct and since she stayed in Recife during September and October — two months before the official opening of the summer season —, it looks as if many families, or at least most foreigners had already deserted the town centre for the outskirts which were rapidly being refashioned into residential suburbs. A practice temporarily disrupted by the events in course of action.

... *All shops are shut, and all food scarce and dear. Most people with their wives and families have left their homes in the outskirts of the town, and have taken refuge with the English.* [!!?!] *The latter, who, for the most part, sleep, at least, in country houses in the neighbourhood, called sitios, have left them, and remain altogether at their counting-houses in the port: every thing, in short, is alarm and uncertainty.*[225]

Miss S., as everybody else it seems, also left the perils of revolutionary action in the vicinities of her country haven, to take shelter in the inner town:

She is now living in her brother's town-house, where the office and warehouses are, because the country-house is within reach of the patriots.[226]

Despite the current state of affairs, and sporting admirable intrepidity, the two women on horseback, as befit the manners of English ladies, braved their way into the outskirts and more than once ... *rode out of the town by some pretty country-houses, called sitios, ...*[227]

... *Our ride extended to Miss S.'s country-house, which is , I believe, on the*

[224] Idem, p.103. The posts *and window-frames of brown stone* are most certainly the so-called *Portuguese stone*, soft, whitish building stone, often brought to the colony as ballast, which had been darkened by the action of time.

[225] Idem, p.98.

[226] Idem, p.105.

[227] Idem, p.106.

same plan with all the others hereabouts, and which can only be compared to an Oriental bungalow; one story very commodiously laid out, a veranda surrounding it, and standing in the midst of a little padlock, part of which is garden ground, and part pasture, generally hedged with limes and roses, and shaded with fruit trees, is the general description of the country sitios about Pernambuco; ...[228]

... I was surprised at the extreme beauty of Olinda, or rather of its remains, for it is now in a melancholy state of ruin. All the richer inhabitants have long settled in the lower town[229]

Contrarily to Koster, who makes a clear and proper distinction between Portuguese and Brazilian inhabitants, in Graham's account of a visit to a local family one is not sure whether she is lumping all white, Portuguese-speaking residents under the designation of *Portuguese* or not. In any case, apart from one or two discrepancies (i.e. *painted cloth* on the floor), her description of the dwelling matches other references.

... as it was the first private Portuguese house I had been in, I was curious to notice the difference between it and the English houses here. The building and general disposition of the apartments are the same, and the drawing room only differed in being better furnished, and with every article English, even to a handsome piano of Broadwood's; but the dining room was completely foreign; the floor was covered with painted cloth, and the walls hung round with English prints and Chinese pictures, without distinction of subject or size. At one end of the room was a long table, covered with a glass case, enclosing a large piece of religious wax-work; the whole prœsepia, ministering angels, three kings, and all, with moss, artificial flowers, shells and beads, smothered in gauze and tiffany, ... the rest of the furniture consisted of ordinary chairs and tables, and a kind of beaufet or sideboard: from the ceiling, nine bird-cages were hanging, each with its little inhabitant; ... The air and manners of the family ... though neither English nor French, were perfectly well bred, and the dress pretty much that of civilised Europe, only that men wore cotton jackets instead of cloth coats, and were without neck-cloths; when

[228] Idem, p.129.
[229] Idem, p.109.

they go out of doors, however, they dress like Englishmen.[230]

Less lively but more accurate in historical terms is the account of the Rev. Daniel Kidder[231] who spent a few days short of two months in Pernambuco in 1839.

This city is divided into three parishes or districts, called severally S.Pedro Gonsalves or Recife, S.Antonio, and Boa Vista. It contains within its whole extent seventeen churches and chapels, besides the recently erected British chapel; two monasteries, three recolhimentos, six hospitals, public and private, a theatre, a government palace, custom-house; prison, marine and military arsenals, and three suits of barracks for troops. Its institutions for public instruction are a lyceum, two Latin and seven primary schools. It has three printing presses, publishing two daily newspapers ...

This city is still frequently denominated the Recife, although it is chiefly known abroad by the more euphonious name of Pernambuco, derived from the province of which it is the capital. It ranks as the third city in Brazil.[232]

The above description gives a measure of Recife's urban growth from the time of Koster's arrival. However, the colonial *sobrado magro* which so disagreed with the aesthetic taste of that earlier visitor seems to have caused a similar impression on the newcomer, thirty years later.

Many of the houses of Pernambuco are built in a style unknown in other parts of Brazil. That occupied by Mr. Ray, stood fronting the water side. Its description may serve as a specimen of the style referred to. It was six stories high. The first or ground floor was denominated the armazem, and was occupied by male servants at night; the second furnished apartments for the counting-room, consulate, &c.; the third and fourth for parlours and lodging rooms; the fifth for dining rooms, and the sixth for a kitchen. ... Surmounting the sixth story, and constituting in one sense the seventh, was a splendid

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[230] Idem, p.127-128.

[231] Kidder, Rev.Daniel P. Sketches of Residence and Travels in Brazil. Wiley & Putnam, London,1845.

[232] Idem, pp.119-120.

observatory, glazed above and on all sides.[233]

The old trellis panels over windows and balconies, by then rapidly approaching condemnation and extinction, still lingered in façades of the older borough, a fact that did not escape the reverend's sharp eye although he, too, fell to the common (and tempting) slip of mistaking the reconstructed environment for one dating from the Dutch occupation:

The district of S.Pedro, frequently called that of the Recife, is not large. Its buildings are most of them ancient in their appearance; they exhibit the old Dutch style of architecture, and many of them retain their latticed balconies, or gelouzias.

Again, as had happened to several before him, what remained of the planned grid of the formerly resplendent Mauritzstaad appealed particularly to this writer:

S.Antonio is the finest part of Pernambuco, when considered as a city. It contains the palace and military arsenal, in front of which a wall has recently been extended along the river's bank. . The principal streets of this section of the city, together with the open square used as a market-place, are spacious and elegant.[234]

Further development is acknowledged as regards the third settlement of the town whose eastern part had been extended towards the river by means of massive earthworks and boasted some of the finest houses in the city.

... Boa Vista is very extensive, and is chiefly occupied by residences and country seats. A few large buildings stand near the river, and, like most of those in the other sections of the town, are devoted in part to commercial purposes. Beyond these, the houses are generally low, but large upon the ground, and surrounded by gardens, here denominated sitios.

The suburbs of Pernambuco, in this direction, are varied in scenery and exceedingly pleasant, notwithstanding such neglect of the streets. ...

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[233] Idem, p.120.

[234] Idem, pp.125-127.

Mondego, Solidade, Manguinho, Ponte de Uchoa, ... Beberibe. ... Monteiro and Poço da Panella ... Magdalena ... Varzea. ... Many of the houses exhibit an expensive and at the same time tasteful, style of construction.

The fact that the word *suburb* replaces vaguer terms such as *outskirts* or *neighbouring areas* suggests that the process of their conversion from summer resorts into residential sites was nearing completion. Another sign of this process is Kidder's acknowledgement that the ruling authority of Pernambuco at the time, had recently moved and was residing in one of those suburbs.

Magdalena, on the left of Boa Vista, is another favourite section of the town. ... In this part of the city the president of the province, at present the Baron of Boa Vista, had his residence, and several fine dwellings were in the process of erection.[235]

Louis Leger Vauthier[236], a French engineer who lived and worked in Recife between 1840 and 1846 examined the city's architecture, specially that of residential buildings, with professional scrutiny. Although he has somewhat hastily generalised what he saw in Recife as valid for the whole country, his portrayal of nineteenth century dwelling buildings constitutes perhaps the most accurate report on domestic architecture in Pernambuco.

In letters to his friend Cesar Daly, a practising architect in Paris at the time, Vauthier classifies what he assumes to be the entire architectural experience concerning domestic buildings in Brazil, into five categories: *sobrados* (dwellings with more than one storey), *casas terreas* (one-storeyed houses), business/dwelling mixed building (the traditional Portuguese house, according to the author), *casas de sitio* (country houses) and *casas-grandes* (farm or plantation seats).

What should those long constructions deprived of light and air but for the extremities be, wonders the author in the first of a series of four letters. A stiff set shape, a single type, squeezed in width and restrictive as regards internal distribution, the Brazilian houses are, according to him, so uniform that once

[235] Idem, pp.128-129.

[236] Vauthier, Louis L. *Casas de residência no Brasil*, in Freyre, Gilberto. Um engenheiro francês no Brasil, José Olympio Ed., Rio de Janeiro, 1960.

you have seen one you will have seen all of them.[237]

He describes a *sobrado* as having: a front room and a back room linked, each, to one or two *alcovas*, by means of glass-panelled doors; between the two, a more or less long corridor leads to the stairs. Various cubicles without light sometimes also open into the corridor. Such is, he maintains, the general disposition of all floors above the ground floor[238] which he considers of little use since the kitchen and most service rooms are found under the roof.

In a commercial street, he states, ground floors are partially occupied by a workshop or a tavern, opening into the public thoroughfare by means of two doors. A third door, leading to a vestibule, strictly separated from the business quarters, access the dwelling upstairs. However, as respectable families, he points out, do not usually accept cohabitation with a trading activity, ground floors are occupied by a male slaves quarter and a guests room, usually reserved for rural visitors — a necessity in a town with no hotels — or for boys aged fourteen or over.[239] Two instances of this type of dwelling are presented — in textual description, plans, elevation and section — by the author. These will be discussed and analysed in the next chapter.

The front room-corridor/*alcovas* - back room pattern lowered to ground floor level constituted, in Vauthier's view, the spatial distribution of the *casas terreas* at the time. The same model would also be found over the stores and warehouses of Portuguese tradesmen in the commercial district.[240]

The further from the city centre the less monotonous the housing scenario would turn, according to Vauthier. Writing about the town's surroundings he states that albeit narrow frontages and steep side gables still protrude now and then from gardens, indicating that the ubiquitous *sobrado* refuses to disappear entirely, the frequent adoption of multiple gables allows for more variety whilst the *sacred number of three* windows-plus-door openings not seldom give way to five or even more such voids in façades. Latticed balconies are usually substituted by wooden galleries or vast terraces over archways sometimes

[237] Idem, pp.818-819.
[238] Idem, p.819.
[239] Idem, p.822-823.
[240] Idem, pp.862-67.

sided by balustrades. Although the *front room - corridor/tiny bedrooms - back room* pattern of internal layout can often be found, most compartments are directly aired and lighted by side windows. In these houses, upper floors are reserved for family privacy and service quarters removed to ancillary compartments or outbuildings.

The utmost architectural disorder characterises, he states, the *casa-grande* where unmatching floor division, irregular openings and entangled gable lines indicates piecemeal construction in most cases. However, these more than any other existing dwelling type show, according to the author, the signs of individual needs and aesthetic taste. Among the features common to most such buildings he lists the ground-floor reserved for service and storage; the huge kitchen; the ceilingless bedrooms; the vast dining room — *only compartment open to outsiders* — linked to an exterior staircase and, in many buildings, to a room where the landlord spends most of his time also connected to the exterior staircase.

This compartment termed by the author as *salon* or *parlour* is thought to have been the usually semi-enclosed space of large proportions overlooking the fields that functioned as an area of transition between exterior and interior, light and shade, public and private, masters and slaves. Also referred to in earlier times as *casa-grande* [241] this space is thought to have lent its designation to the whole building and to have perhaps been the precursor of the large surrounding *alpendre* of most country seats and farmsteads in the country, and of the terrace which remains to this day, be it ample or tiny, sole or multiplied, front-, side- or back-sited, an almost obligatory feature in Brazilian dwellings. The assumption of the *alpendre* as the very essence of the *casa-grande* has been challenged by a recent study[242] in which the author classifies these buildings according to certain recurrent models and finds out that some *casas grandes* had actually never had an *alpendre.* However, the fact that these examples seem to constitute a very limited parcel in the universe of such buildings renders them as insufficient evidence to discredit the notion.

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[241] *Casa* meaning house in Portuguese also used to designated different compartments, i.e. *casa de máquinas* (machine room), *casa de purgar* (purge room in a sugar factory) much in the way that the word *room* operates in modern English. Thus the term *casa -grande* for the usually largest compartment in the building.

[242] DaSilva, G.G. Engenho e Arquitetura. Morfologia dos edifícios dos antigos engenhos de açucar de Pernambuco. Tese de Doutoramento, USP, São Paulo, 1990, p.317

5.2. **The capital**

Although historiographical material increases steadily during the nineteenth century and chronicles by local and foreign observers give a very lively impressions of Recife's society at the time, references about domestic buildings are meagre and scattered so that the reports of foreign travellers related above, constitute a concise and comprehensive source of information on the subject. Thus, despite occasional misinterpretations, they are believed to suffice the purposes of the present study insofar as, combined in chronological sequence, they sketch a fairly accurate image of the changing scenery of the town along the first half of the nineteenth century.

It should be noted that although Brazil officially ceased to be a Portuguese colony in 1822, what is generally termed as colonial architecture and has been described above, dominates the built environment until well into the last quarter of the nineteenth century, in most of the country. The decadence of the model occurs at different periods of time in different cities and regions. In Recife, the colonial morphology starts to show signs of frailty around the mid-century, when new stylistic repertoires began to make a strong appearance in the town.

The long lasting struggle for hegemony against Olinda (reerected from ashes to its former glory and later fallen into decay) was finally won in 1827. Recife settled definitely as the capital of the then Province of Pernambuco and accelerated the pace of its expansion which, launched in 1908 with the opening of the ports to international trade, would have it raised to the second major Brazilian town (after Rio de Janeiro) during the later half of the nineteenth century.

The 1840's witnessed a particularly strong leap in that process. An intense economical surge coupled with a period of political stability that succeeded the abdication of the Emperor Pedro I, contributed to the success of the provincial government of Francisco do Rego Barros (Baron, and later Count of Boa Vista), generally praised as the most fruitful administration, in urban terms, since Nassau.

Ruling with overwhelming majority in the local Assembly and unrestricted support from the Central Government, the French-educated Boa Vista held one of the longest offices in the history of Pernambuco (1837-1844) and was greatly responsible for the revamping of the capital to an almost unrecognisable state in some areas. Manners, ideas, professionals, work force, materials and styles were imported from Europe so that by the end of his term great part of the, until recently, vivid colonial townscape lay hidden behind a thick veneer of stylistic novelties, or had become history.

Engineers, artisans and artists were commissioned in Europe for a range of developments and embellishments in the Province as well as to help raise standards among the local craftsmen. A government palace, an opera house, a cemetery, and a penitentiary were some major buildings among the many developments initiated in the early 40's, not to mention the embankment gardens, several bridges and roads, streets and avenues. These, mostly broad and rectilinear, were paved, gas-lit and lined with edifices neatly aligned, gauged and numbered.

The Neoclassic style would soon constitute the dominant vogue. Officially introduced in the region through the magnificent opera house — Teatro Santa Isabel, designed by Vauthier and referred to as the President's pride and joy — this grammar, at first restricted to public edifices and new upper class dwellings, later spread down to the vernacular environment. Albeit usually restricted to a thin coating over colonial structures, cornices and stilted arches added a panache of refinement and cosmopolitanism to buildings, old and new, and, most importantly, inaugurated the vast list of architectural innovations which would, along a period of less than a century, redefine the looks of the town.

5.2.1. **Mutations**

Colonial urban settlements, as has been seen, configure irregular grids of winding thoroughfares anchored to topographic shapes, and define continuous rows of buildings occupying the entire frontages of plots whose front doors open directly to the public space. **Figure 5.2**[243] shows central areas of Recife in the mid-nineteenth century when the colonial look was still very much present. In the newly urbanised areas this scenario gave way to rectilinear streets and avenues, sided by detached edifices shielded from the public area by porticoes, terraces and front gardens. Off went double or treble rows of eaves, basket arches and what remained of the ill-famed latticeworks. In came parapets, pediments and cornices, stilted arches, glass and ironwork, columns and capitals. These elements, bearing a more or less faithful resemblance to their classical models were lavished over new buildings as well as onto façades of neat colonial inheritance from around 1850 onwards. Some of them appear juxtaposed to colonial façades in a central street of Recife, photographed in the late nineteenth century (**figure 5.3**).[244]

Soon and perhaps, as some claim, concurrently — albeit timidly — to the very outset of the *classicizing* process, novelties borrowed from other stylistic trends were added to the ones associated with the Greco-Roman architectural grammar. Pointed arches, battlemented parapets, bargeboards, iron railings and stuccoed mouldings of flowery undulations or varying motifs were some of the most popular features applied to buildings which were seen as *romantic* in ethos and referred to as *picturesque* , *neo-gothic*, *art-nouveau* and God-knows-what-else in style. In the decades around the turning of the century such elements defined the appearance of houses newly-built or under construction in the recently developed suburbs.

From 1910 onwards, specially in the 20's, the city's scenery melted into a plethora of stylistic elements derogatorily referred to as *bride's cake style* which, on a close scrutiny, turn out to be little more than the addition of a few extra variegated motifs — i.e. Tudor and ogee arches, bartizans, festoons, etc. — to the current miscellanea. The outraged criticism raised among informed sectors seems now to have been less due to the newly adopted features themselves and more to the fact that their appearance coincided with another surge of massive urban growth, that rendered these buildings conspicuous in an unprecedented scale. Much of what had survived previous fads in terms of austere façades, from large *sobrados* to tiny *casas térreas* — already slightly touched with a tint of neoclassicism —, dissolved into moulded stucco.

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[243] In Jurema, Aderbal, O sobrado na paisagem recifense, UFPE, Recife, 1971.

[244] Idem.

Symmetry fractured hopelessly into askew openings, steep side gables disintegrated into mansard roofs, red tiles disappeared behind indented or undulating parapets.

The reaction to the above state of affairs was yet another manifestation of sheer eclecticism, this time in the guise of a Neo-colonial revival which although concocted in the pretence of resuscitating values of a past era, embodied, from its very outset, features entirely unrelated to the so-called Luso-Brazilian inheritance. These, range from elements of clear (and faint) Art-Nouveau flavour to less defined but equally alien tendencies. Although some earlier instances of Neo-colonial eclecticism recurrently displays a set of features (mostly newly-forged) which could perhaps have constituted a stylistic grammar of its own, these never fully upgraded into models and remained as exceptions in the bulk of the *neo-colonialist* output.. In fact, the creation backfired against its creators by turning into a fresh catalogue of alternative shapes ready to be merged in the current formal potpourri. To make matters ironically worse, neo-colonial elements became entangled with a flair generally known as *Californian Mission* that is thought to have originated from the influence of cinema settings. The aborted Neo-colonial rescue thus constituted the last addition to the eclectic adventure, immediately before the whole morphological extravaganza dismantled away into the plainness of the *International Style.*

The above account is by no means an attempt at defining or analysing stylistic grammars but aims solely at providing a broad picture of the architectural tendencies which dominated the housing panorama of Recife at successive time periods so that the sample of house plans under spatial scrutiny, in the next chapter, may be placed in time and space with a fair degree of accuracy and the criteria for choosing them understood.

5.3. **Remains**

Six morphological categories resulted from the empirical observation of what remained from the pre-modernist city as recorded in the 1985-88 survey of Boa Vista and the areas along the rivers Capibaribe, Beberibe and Tejipió. These six groups comprise, in general terms, the *basic types*, each configuring a morphological repertoire resulting from the combination of a more or less constant set of elements. The remaining examples — *the hybrid types* — amalgamate elements common to more than one basic category.

The basic types can be broadly dated as follows:

1. **Luso-Brazilian**: Prior to the mid-nineteenth century. Very few such buildings survived in the areas surveyed and their original plans were not found. **Figure 5.2** illustrates the type in its urban version.

2. **Classicist**: Dominating during the second half of the nineteenth century. A reduced number of surviving cases was identified. **Figures 5.4a** and **b** show two examples.

3. **Romantic/Swiss chalet**: Mainly found in suburbs developed in the decades around the turning of the century (**figures 5.4c** and **d**).

4. **Bride's cake**: From the end of the nineteenth century throughout the 1930's, but dominating entirely the 1920's urban scenery. This category — which comprise the vast majority of surveyed cases — could perhaps be seen as a modified, overdecorated version of classicist inspiration (**figures 5.5a** and **b**).

5. **Picturesque**: Already insinuating its lines alongside early neoclassic models. Some of its prevailing elements are also part of the repertoire associated with romantic chalets. The model assumes a finished profile in the 1920's when some of its earlier features —i.e. pointed arches, battlemented parapets — tend to disappear and to be substituted by others seemingly inspired by the British picturesque revival. Bows and bay windows, false timber framing, dormers and turrets, are part of the new grammar. The bucolic taste thus seems to have migrated from a mock castle and mock *Swiss chalet* look to a mock *Victorian* flair (**figures 5.5c** and **d**).

6. **Neo-colonial**: Occurring mainly in the 1920's (**figure 5.5e** and **f**). Mingle colonial features borrowed from rural and urban domestic buildings —

i.e basket arches, double and treble eaves line, hipped roofs — and from religious architecture — baroque columns and pediments — with newly created ones and with various elements of supposed Portuguese or Spanish origin.

Of the hybrid types one, by the scope of its presence, deserves special attention. Whereas the larger continent of surviving buildings among the basic types falls into category 4, the overwhelming majority (over 40%) of all surviving cases comprise houses which combine colonial and classicist elements (**figure 5.6**). Two reasons contribute to this

Earlier alterations in the colonial morphological vocabulary were reinforced by decree, insofar as key elements of that grammar were compulsory removed. As this occurred at a time in which a more or less erudite neoclassicism dominated in newly erected public buildings and posh residences, cornices and stilted arches were the natural choices for newly-added parapets that substituted the formerly protruding eaves and to door and window frames turned bare after the ban of *gelosias*.

Another reason that contributes to the dominance of colonial/classicist types in the scenery is the fact that the only areas under institutional protection until very recently were the old cores of the city or of some of the former hamlets in its surroundings, heavily dominated by those buildings, whereas categories 3 through 6, usually outside those areas, have continuously been wiped out in the last decades.

Table 5 shows the number of cases affiliated to each morphological type found in the four sections of the surveyed area. It should be noted that each category includes cases classified as basic as well as those displaying amalgamated stylistic tendencies. Hybrid examples are enrolled in the category whose elements prevail in their principal façade. It can be seen that the Boa Vista and the Capibaribe valley areas assemble, by far, the most comprehensive contingent of cases in scope as well as variety of types. These sections of the town were therefore chosen as research area in the present study.

The fact that rapidly extinguishing vestiges of the pre-modernist town have not as yet deserved a systematic study beyond the surface of their façades, makes the need to investigate their spatial structures all the more urgent. The analysis that follows has therefore attempted to fill this gap in a diachronic perspective by comparing the spatial structures of colonial buildings (categories 1 and 2) to those of post-colonial ones (3, 4 and 6). A comparative study between the findings from this investigation and from the analysis of British houses, the subject of the last chapter, is believed to offer some contribution towards the alleged rupture with colonial models in post-colonial houses, and, in particular, illuminate the extent of the influence that the British presence might have had in altering modes of colonial behaviour.

CHAPTER 6

ON COLONIAL HOUSES OF RECIFE

This chapter investigates the spatial structure of houses in Recife as they were built prior to the arrival of British residents in the town. It seeks to ascertain whether a model (or models) of spatial articulation characterises those houses and how it relates to patterns of behaviour within households.

6.1. The sample

Twenty-one plans retrieved from the archives of the town's former water and sewage department (DSE) constitute the sample under investigation. This number was arrived at after eliminating plans which had been conspicuously altered in recent times, exact replicas and illegible, incomplete or incoherent plans (with unmatched storeys or which did not correspond to the records of the 1985-1988 survey). Finally, some excess cases in a same neighbourhood were also randomly discarded, so that certain areas were not over represented at the expense of others. **Figure 6** shows some of the houses which are to be analysed in the present chapter and **table 6** displays their addresses, study area and neighbourhood. .

An extra set of four plans was included as these are some of the oldest and most recurrently referred items of domestic architecture in Brazil and can help establish the framework and illuminate the analysis of the spatial configuration of surviving colonial houses. They comprise four *sobrados* — the essentially middle to upper class urban dwelling — in Olinda and Recife.

6.2. Analytical procedures

A set of basic space syntax techniques similar to that used for analysing the sub-sample of British plans will be applied to these plans. Besides general spatial features and their syntactic measurements of integration (RRA) and differentiation (BDF) examined throughout the present study, permeability graphs were drawn for each case and reworked to include or exclude certain spaces so that diverse permeability routes could be viewed: (1) those within the interior complex (minimal living spaces); (2) those associated with the interface between inhabitants and formal visitors (minimal living plus one space representing the street and as many others as are the intermediating spaces linking the two, by way of the front door); and (3) those comprising all alternative routes open to the inhabitants, as well as, to a certain extent, to informal visitors, (minimal living plus a single space representing the outdoor linked to all interior spaces with a door opening to the exterior).

A few houses showed a kitchen accessed by outdoor routes only. Their graphs were once again reworked to include this space which was linked to the minimal living through the carrier. Extra reworkings of permeability graphs were carried out in some cases, when room functions were thought to have changed over time (in relation to the labels on plans) or when some minor alterations appeared to have occurred.

The idea behind the analytical procedures was to investigate relations among :

1. **Inhabitants**: represented by the minimal living complex, that is, all interior spaces connected by indoor routes only.

2. **Inhabitants and visitors**: the minimal living complex and its links with the street by the front door only.

3. **Inhabitants extended complex**: the minimal living linked to the carrier by all available exterior doors.

6.3. <u>As a prelude to investigation</u>

A case study[245] developed prior to the field work attempted a first insight of colonial spatial structures and the identification of genotypical patterns in some

[245] Trigueiro, E. *Are colonial houses seen-one-seen-them-all buildings?* Term paper, UAS, Bartlett, 1991.

earlier buildings of the Northeast region of Brazil . Of the seven cases analysed in the paper, three are some of the most cited examples of colonial architecture in the country and shall be discussed and, later, analysed here.

The *sobrado* located at the *Praça de São Pedro* in Olinda[246] (**fig.6.1a**), thought to have belonged to very wealthy occupants, is one of the oldest living examples of urban domestic architecture in the country and the only dwelling believed to have survived Olinda's fire of 1631, having therefore been built before then. Robert Smith[247], in his study on the civil architecture of the colonial period, considers this building to be an archetype of residential architecture in colonial Brazil.

He emphasises five aspects of the building's main floor which can be found in houses of various parts of the country: the front room or visitors' room (*sala de frente* or *sala de visita*), generally referred as the centre of social life (space 9); the central corridor (space 5); the row of bedrooms (*alcovas*) on both sides of the corridor (spaces 1 to 4); the back living and dining room (*sala de trás* or *sala de jantar*, space 8); and the kitchen connected to the back room (space 7).

In support of his thesis, he quotes John Luccock who, during his stay in Rio de Janeiro between 1808 and 1810, described the main storey of a town house in the city at the time, nearly two centuries after the house in Olinda was erected:

... persons connected with the higher departments of trade and others of sufficient rank and means, occupying the upper stories, have the advantage of a separate entrance from the streets which ... conducts to a staircase ... a door conducts to the front room, called Sala, or drawing room, which generally fills the whole breadth of the house and is nearly a square. Before it is the enclosed balcony, which is entered from the room by three doors, answering the purposes of windows ..., On the side of the room opposite to the front , is a pair of folding doors ... these ... lead to an alcove or recess, forming the principal bedroom. On each side of this recess there is a panelled door, opening into passages, which lead to other smaller and closer alcoves, and terminate in an open varanda [sic], *surrounding an area, from which, the back part of the house, and the warehouse are enlighted. Beyond this area is the*

[246] Plans from Smith, op.cit.,p 118
[247] Smith, op.cit.,pp.116-123.

kitchen.[248]

This *varanda* , Luccock later explains, was in fact a room where the family had meals and gathered in intimacy. The word varies in meaning, from region to region. It may mean, for instance, a long balcony-like element in upper floors (similar to what the author refers as an *enclosed balcony*), or a room, usually facing the back yard. It is thought that because in some regions the back room was only half enclosed in the manner of a terrace, or encased in wooden trellis like the enclosed balconies of colonial façades, the expression continued to designate the space itself regardless of its being semi-open or not.

The similarities between Luccock's description and the house in Olinda are remarkable and although Smith fails to acknowledge some differences (two instead of one corridor appears to have been the case in the house in Rio, a layout also found among *sobrados* in Pernambuco), his account, added to most early reports on colonial houses seems to corroborate Smith's thesis that the spatial arrangement of that house was not circumscribed to a particular region but may be viewed as a model of colonial Brazilian dwellings.

However, the functions of some of the ground floor rooms in the *sobrado* at Praça de São Pedro have been subject to controversy. Some authors, label the two rooms at the back of the warehouse as slaves quarters while others, regard them as guests' rooms or special servants' accommodation whereas slaves would sleep in the space at the right hand side of the ground floor.

Smith emphasises the differentiated symbolic — as well as functional — meaning of the front doors: the ones leading to the store, he points out, signal the external world connecting street, store, warehouse and guests, whereas the right hand side door and the vestibule represent the family world by accessing directly and privately the dwelling and by screening, from visitors' view, the service-related spaces behind the vestibule, whose existence is unsuspected from the street.

The *sobrado* at *rua do Amparo* , again in Olinda (**fig.6.1b**), has also been the object of some academic work but foci have concentrated at its façade rather

[248] Luccock referred by Smith; op. cit.:120.

than at its plan due to the presence of the (in)famous latticework — the *gelosia*— over the balcony. This constitutes a rare case in which that element managed to survive the nineteenth century ban.[249]

Regarded as a seen-one-seen-them-all colonial layout this example bridges the gap between *sobrados* and *casas térreas* mainly due to its location on the side of a hill (a very frequent situation in Olinda), which determined its development into a two-storeyed frontage in the main street and into a one-storeyed building at the rear end. This building is thought to have been occupied by people not as wealthy as those living at *praça de São Pedro* but nevertheless well differentiated from the bulk of *casas térreas* dwellers for although the rear part of the house, at ground level, leads directly to the back yard, from a main street perspective the living quarters situate on the upper floor, as occurs with *sobrados*, and are equally accessed and shielded from the public domain and from the store by a vestibule.

The third house (**figure 6.2**) is another recurrent iconographical item in the historiography of Brazilian colonial buildings. Its elevation, section and plans were drawn and described, between 1840 and 1846, by Louis Leger Vauthier, according to whom the house stood in Recife's central borough, had a frontage of between 4.4 to 5.5m wide, and was occupied by a family of mediocre status.

The author invites the reader for a tour of the house, an easy enterprise, he states, for the door is left open and an old black man, stationed in the vestibule and busily making a straw hat, will lead the visitor into the straight staircase, lit from above. The upper landing is enclosed by a latticed door. The man rings a bell and a black female face shows up through the trellis. Stamping of tiny feet and the rustling of a woman's dress are heard. After a fairly long while the door is open and the gentleman of the house awaits ceremoniously in the front room. The door to the *alcova* that leads to the front room is shut and nothing can be heard but if this door were attentively observed, it would reveal, at times, a lively face scrutinising the visitor from behind the glass and the muslin curtains hastily drawn aside. Children and often the lady of the house creep through the tiny corridor behind the staircase and once aware that the visitor is a Frenchman, muffled soft laughter will certainly be heard if one listens

[249] Plans from Pinto, *Muxarabis e Balcões*, in Arquitetura Civil II, FAUUSP-MEC/SPHAN, São Paulo, 1980,.p.60

attentively for whereas in France, he advocates, novelties tend to be deemed attractive, in Brazil they look ridiculous.[250]

In this house the dining room is situated on the attic as are the kitchen, the ironing room and the bedroom for female slaves and the ground floor is occupied by a vestibule, a corridor, a bedroom for male slaves and another for guests, two dark alcoves (one under the stairs), patio and horse shed.

This particular example has one intermediate storey between the ground and the attic floors but had it more intermediate storeys, the author claims, the layout of the main floor would be reproduced in all of them. The first floor would acquire ceremonial status with the front room reserved for distinguished visitors and the back room for formal meals whereas less pompous events would take place in the rooms which echoed these on the floor above and so on. The further upwards, the less formality.[251]

This is the situation he reports to have encountered in the house (**fig.6.3**) of a wealthy and well-educated man who has been to Europe, speaks a little French and a little Italian, has read Balzac and other French writers and who, having shed a little of the national prejudices, is in the habit of receiving the society at home. He had the house erected for his residence in an area of his choice.[252] However, Vauthier argues, one finds there the same general layout. The variations are a wider frontage of around 6.6 m. to 7.7 m. which allows for the staircase to develop along the side walls and some extra rooms built over the extension of the horse shelter. All floors above ground level are, he maintains, a rigorous repetition of the first with the ubiquitous front and back rooms, the former opening over the street the latter over the patio, the usual *alcovas* linking to those rooms and the dark cubicles off the corridor.

The ground floor shows some extra particularities for in this case one travels by carriage. Thus, a wide opening in the middle of the façade gives way to the coach into the vestibule where this vehicle, as well as the sedan chair for the ladies' outings, are kept. As symmetry is much appreciated in the country, according to the author, the first flight of stairs aligns with the main entrance,

[250] Idem, p.820-821.
[251] Idem, pp.849.850.
[252] Idem, pp.823-825.

thus making space for a horse and service passage between the vestibule and the patio.

Vauthier presents drawings of the ground and first floor, lists the spaces on the second and third floors and only mentions that the attic concentrates all household chores as well as the sleeping quarters of the females employed in the house service. He sees no need to bother with sketching the upper floor plans since they are exact replicas of the first floor.

However, whereas it appears that in the previous case the author relates something he has actually observed in detail, one cannot help the feeling that the report on this case resulted from partial knowledge. He states, for instance, that the coachman in a household of such status cannot be black. A German or Frenchman would certainly have been hired. Thus, in the quality of a privileged free man he would run and reign over the ground floor domain which also constituted his domicile. Yet, Vauthier has labelled one ground floor room as *the bedroom of the coachman* ***and*** *the male slaves*, a sleeping arrangement which can hardly be trusted as acceptable by the most illustrious and probably the only free member of the household. Besides, there are no clues about the use of the many *alcovas*, not even the ones adjacent to the front room which traditionally function as main bedrooms but here seem to be of rather obscure purpose since two large bedrooms — one explicitly attributed to the children — can be found. Although at the time some extended families could constitute huge clans with numerous grown-up children, relatives and aggregates living under the same roof (or residing in their own dwellings in the country but occasionally sharing the family's town house), the number of spare *alcovas* in this particular case still seems excessive and may have had other functions not known by the author.

Vauthier[253] proceeds his report stating that in a formally announced visit, the caller would be met in the first floor front room, richly carpeted and furnished in European fashion, that was reserved for ceremonial occasions. If invited to a formal dinner this would also be the setting into which the guest was firstly introduced before moving into the dining room — none other than the first floor back room — equally reserved for formal occasions and fitted with sideboards

[253] Idem, pp.125-126.

sagging under shinny plate. In any circumstances this floor would be hermetically sealed from all others but it the guest acquired the status of an intimate relation and visited the family at tea time, he would climb up to the second floor, being introduced to the front room used for daily company. The lady of the house reigns over this apartment and could be found reclining on the *canapé* — the national couch — in rich attire and surrounded by visiting ladies while the men sat on rocking or straw-backed chairs, lazily smoking Cuban cigars. From there, guests would proceed to the third floor back room where everyday meals were served.

6.3.1. From the repertoire: a house-by-house syntactic analysis

The four dwellings described above, by constituting rare cases of early documented domestic buildings and by having had their spatial structures described in the literature, were considered the best references for setting the background against which the investigation of colonial domestic space was to be developed. A brief analysis of their spatial complexes therefore introduces the theme. The reader should refer to **figures 6.1** through **6.3** for plans and permeability graphs and to **tables 6.1**, **6.2** and **6.3** for numerical measurements.

The permeability graphs shown represent the complex viewed from the street, through the front door, and reworked to include all connections to outdoor spaces. The discussion starts by describing, in general terms, the first graph (rooted from the street). This helps visualise the spatial structure from the perspective of someone entering the house through the front door. The reworked graph is discussed in the item on the inhabitants extended complex.

Table 6.1 displays some general data, minimum, maximum and average RRA values in the plans as well as their differentiation (BDF) for the minimal living complex and for each reworked complex. **Table 6.2** shows the RRA values of the rooms used for receiving, eating and cooking and the inequality expression that translate the hierarchical arrangement of these functions in terms of accessibility in each complex. It also displays the BDF values that translate differentiation among the three functions for the inhabitants complex, with and without carrier. **Table 6.3** arrays all spaces in the minimal living complex in ascending order of its RRA value (more integrated to less integrated)

Praça de São Pedro **(fig. 6.1.a)**

The permeability graph shows two distinct branches rooting from the vestibule (14): one, ringy, links the main living spaces, the other, ringless, connects service- and business-related spaces. The actual family rooms are well withdrawn in the graph, its function cells lying from depth 3 (from the vestibule) upwards. The family branch configures a central core defining a string of dots that represent a sequence of alternate transition and function spaces. Two rings attach to the string, one containing bedroom 1, a windowless *alcova*, and the *sala de visita* both being shallower than any other function space in the family complex and the latter being the only function cell to lie in both rings. The corridor, at depth 4 constitutes the inner hub of distribution for six of the seven function spaces. Bedroom 2, also on a ring, is another function space to enjoy alternative access. The living/dining room — *sala de jantar* or sala *de trás* — as well as *alcovas* 3 and 4 lie in the second deepest level. The *cozinha* (kitchen) and the larder are the deepest (depth 6) spaces. The ground floor branch links store, warehouse and the accommodation for guests or male slaves (or both), these constituting the deepest dots in the service branch.

Inhabitants (minimal living)

High segregation and strong differentiation suggest a system where most activities are well set apart with a few selected spaces enjoying exceptional integration. The RRA scale initiates with the *sala de visita*, that shares with the landing the most integrated value. The staircase and the corridor come next succeeded by *alcova* 1 and *alcova* 2 following one another. The home altar and the balcony, with equal values, are more integrating than the living/dining room which comes before *alcovas* 3 an 4, sharing the same value, and the *cozinha* (7) is the most segregated of all family spaces. The two guests' (or male slaves') rooms on the ground floor (spaces 18 and 19) are the most segregated spaces of all. The store comes before the kitchen in the RRA scale. The fact that function spaces — the visitors' room and spaces 18 and 19 — constitute the extreme ends of the scale renders the already high differentiation level all the more striking thus meaning that the segregation between the main reception room and those spaces — for male guests or male slaves — could not possibly be greater. The differentiation factor among the average RRA for the complex, that of the *sala de visitas* and that of the kitchen, 0.924, is very high for function spaces as is the differentiation among the three day rooms — visitors', dining and kitchen — at 0.925.

Inhabitants and visitors (minimal living plus the street)

The configuration does not alter concerning the hierarchy among main rooms although the addition of the street to the complex increases average as well as individual integration and reduces differentiation in the system, apparently for reinforcing the upstairs/downstairs link. The street is more segregated than any function space on the family floor but for the kitchen. The increase in differentiation among day rooms (to 0.924) is neglectable but the difference factor involving the complex, the visitors' room (first, and usually only, function cell to be accessed by outsiders) and the public space is 0.952, which is quite high, denoting a strong opposition between the private domain of the home and the public sphere..

Inhabitants extended complex (minimal living plus carrier)

When alternative routes are considered the whole graph is pulled down and the complex becomes shallower and a lot more integrated. The living-dining room shifts from depth 7 (counting from the street) to depth 1 (from the carrier) and becomes the most integrating space; the carrier comes between the *sala de visita* and the *cozinha* , the latter pulled up to the middle of the scale. *Alcovas* 3/4, altar and balcony, followed by the two ground floor rooms backs the rank. The carrier itself constitutes a strong focus of integration helping to level differentiation among main living rooms. The mean BDF translates less differentiation within the system as a whole and the BDF among *sala de visita* , *sala de jantar* and kitchen, 0.933, shows a significant reduction in the hierarchy among these spaces.

Rua do Amparo (**fig.6.1.b**)

Although built way ahead of the previous case and thought to have housed a family of much more modest means, the building still standing at Rua do Amparo, translates into a permeability graph very similar to that of the former example with a string of alternate transition and function spaces, a ring containing the *sala de visita* and a front alcove and the main living spaces withdrawn from the vestibule which links that compound to the store. Again the *sala de visita* is at depth 3 from the vestibule, the shallowest level occupied by any function cell, the corridor, constitutes the hub of internal distribution for six out of seven function spaces, not counting the altar, and one bedroom is shallower than all others. Again the living/dining room and some bedrooms are a level shallower than the kitchen, the deepest, among all family spaces.

Inhabitants

High mean integration and a huge differentiation in this complex indicates that whereas most spaces are easily accessed a few activities are radically isolated, this being all the more significant because the most integrated and the most segregated spaces are both functional. The *sala de visita* is the most integrating space, even more so than the corridor. One of the *alcovas* follows, being also more integrated than all others. The living/dining room comes next in the integration order. The altar and the balcony share the next position in the RRA scale, succeeded by the other *alcovas.* At this point, a large gap in the scale sends the *cozinha*, the vestibule and the store into a very segregated sphere. The differentiation among the mean RRA, the *sala de visita* and the kitchen is a striking 0.798 and that among day rooms even greater, at 0.793, a measure of the amount of structuring implanted in the complex.

Inhabitants and visitors

Whereas the addition of the street in the previous case improved average integration throughout the complex this time an interesting phenomenon occurs. The average integration decreases as does that of all function spaces in the family floor. Conversely, the spaces linking the main storey to the street become slightly more integrated as does the store. The integration order remains the same but for some gain in integration for the altar and balcony which now share the same position with the living/dining room. The street and the store share the most segregated point in the scale, the differentiation factor (0.749) among complex, main reception room and public space being the highest possible for this system. There is a significant reduction in differentiation among day rooms which drops to 0.816. Again, a pattern of radical opposition between home and street is revealed.

Inhabitants extended complex

The graph becomes much shallower when the carrier is added, average integration increases, overall differentiation decreases and the living/dining room travels up the RRA scale although not far enough to take over the *sala de visita* which remains as the focus of integration. The altar and the balcony becomes more segregated and the kitchen slightly less so. The carrier sits in the most integrated half of the scale. The differentiation among carrier, visitors' and dining room is 0.969 and that among the family's day rooms drops radically (0.923) what suggests again that alternative outdoor routes function as a strong integrator for the complex.

Recife - "respectable family" (**fig.6.2**)

The access graph resulting from the *sobrado* which Vauthier places in central Recife and refers as occupied by a *respectable family* presents common features as well as some particularities in relation to the previous examples. The tree representing the family spaces displays the usual string and rings pattern but this time the string is composed by transition spaces only, until the attic ring is reached. Family cells are even more recessed from the vestibule than in the previous examples, with the shallowest function spaces at depth 4, but this time the back living room besides the *sala de visita* can be found at this level in the main floor ring which encircles the two day rooms, the two bedrooms (10 and 11), and the tiny passage disguised behind the staircase (14) which links both *alcovas* at a deeper level and closes the ring.

Another ring links kitchen, dining room, ironing room/female slaves' sleeping quarters and two transition spaces. The family complex is therefore neatly split into two rings, one for each upper storey. The service quarters split into the usual ringless branch springing from a transition space but an extra function space — the male slaves' chamber — links directly to the vestibule.

Inhabitants

The spatial structure is fairly segregating and differentiated when seen as a whole. Segregation and accessibility are balanced in the system. Contrarily to the previous examples the first four most integrating spaces are transitional. Among function cells, the *sala de visita* is again the most integrating space and the *cozinha* the most segregated but this time as living and dining are split into two distinct spaces, the living room (*sala de trás*) lumps together with the main reception room in the most integrated side of the scale whereas the dining room joins the kitchen at the other end. Among the sleeping chambers, again, one *alcova* takes precedence over the other but has the same level of accessibility as the female slaves' accommodation. The balcony and the guests' room centres the scale whereas the male slaves' quarters and the *copa* — a mixture of pantry and scullery where the serving and clearing up to and from the table is done — are the most segregated spaces. The differentiation among the average in the complex, the *sala de visita* and the male slaves' quarters (0.93) is nearly the greatest possible involving function rooms in the complex. If the male slaves' space is substituted by the kitchen the BDF drops to 0.954, still very strong. The BDF among visitors', dining room and kitchen is 0.947.

Inhabitants and visitors

The average integration increases a little as does differentiation in the complex but again this does not affect all spaces equally. Whereas the spaces in the family complex become more segregated, ground floor spaces gain some integration. However, the order of RRA values does not alter much except for the female slaves' quarters which slides down the integration scale sharing equal value with the guests' room that becomes significantly more integrated. The street is as segregated as the male slaves' quarters. The differentiation factor among the average in the complex, the visitors' room and the street is very strong at 0.945. The differentiation among main day rooms increases (0.946) instead of decreasing but this increase is neglectable.

Inhabitants extended complex

A reduction of one depth level contributes to increase a little the average as well as the individual integration values of the complex but this is stronger in terms of the visitors' room, whereas the increase in the accessibility of the dining room is irrelevant. The hierarchy among main function rooms does not alter in rank but is strengthened. Thus, following an opposite trend to that found for the houses in Olinda, the carrier space stresses differentiation within the complex, that among visitors' room, dining room and kitchen, for instance rising to 0.944.

Recife - " wealthy man" **(fig.6.3)**

The description of Vauthier and his acknowledgement of the missing second and third storey plans as exact replicas of the first, albeit slightly frowned upon, were taken as fact. The absence of a plan of the attic — where household chores and sleeping accommodation of female servants are said to be located — was resolved by replicating the central *alcovas*, to account for utility space, the front and back rooms for female slaves' and kitchen quarters, respectively, and by adding one transition space linking them all. This can hardly be taken as a satisfactory piece of data. It was however thought worth trying given the importance of the textual reference and of the plan.

As in the previous example the core string in the permeability graph is formed by transition spaces only and distinct rings also subdivide the permeability graph according to the various storeys but here two function spaces only are encircled in each ring. The shallowest function space (alcove 33) in the family complex lies at depth 3 from the vestibule. Given the precarious level of information concerning this example there are no clues about the use of *alcovas* 21, 33 and 9, which seem particularly interesting since they offer an alternative route to the *sala de visita*, a fact suggestive of these rooms having some purpose other than that of mere spare bedrooms.

Inhabitants

A medium level of integration and low differentiation suggest a complex in which most spaces are fairly isolated. As in the previous example, most integrating spaces are transitional, six of them lead the RRA scale before the most accessible function space, *alcova 21.* The next most integrated rooms are *alcovas* 21, 33 and 9, respectively. As has already been said, front *alcovas* traditionally function as bedrooms (usually reserved for the senior members of the family) but in this case there is a much larger space (28), labelled by Vauthier as *bedroom*, with a cabinet and two *alcovas* opening directly to it which gives reason to suppose that this is, in fact, the master bedroom. It comes next in the integration scale. The daily reception room follows. The formal reception room and the main dining room share the next position, succeeded by the room designed for daily meals. The female slaves quarters and the kitchen share the same value. The male slaves' quarters (and coachman's room if Vauthier is to be believed) sit in the rear of the integration sequence. Again the strongest differentiation involving function rooms, relativised by the average RRA for the complex (0.955), opposes the setting for daily reception and the male slaves' quarters. That involving the average for the complex, the main reception room and the kitchen is a lot weaker although its value, 0.987, is still quite high in a context of domestic spaces. The BDF among the main reception rooms and the kitchen is yet stronger, at 0.985, stressing the opposition between the visitors- and the service-related worlds.

Inhabitants and visitors

The complex becomes slightly more integrated, on average, when the public space is considered. The street is very segregated immediately preceding the male slaves' quarters. The differentiation among the complex average, the main reception room and the street is 0.991, the lowest so far, a fact that brings Vauthier's observation regarding the social habits of the 'wealthy man' to one's mind. The BDF value involving the two main reception rooms and the kitchen is, not surprisingly, much higher 0.983, thus greater than what was found for the minimal living complex.

Inhabitants extended complex

The picture is nearly the same as the one resulting from the complex when the presence of guests is anticipated, although the carrier, albeit very segregated, is significantly less so than the public space. Following a trend unveiled in the previous example the carrier does not contribute to lessen differentiation within the spatial network. Differentiation within the overall system decreases a little but that does not reflect less hierarchy among key functions whose RRA value remains rigorously unchanged in relation to the complex linked to the street.

6.3.2. **Trends**

To analyse four meagre dwellings (two from one sole, unverifiable reference) and pretend they are representative of over two centuries of colonial middle and upper class life is at least dangerous. However, as these seem to be the only set of historiographically supported plans of early colonial urban dwellings in the area of Recife and as some recurrent themes did emerge from the basic syntactic approach above, it looked tempting to risk a general profile that might help settle a toehold on the subject of colonial domestic space before discussing the actual body of data.

In all cases there is a clear distinction between the family domain, which include female labour service and lodging areas, and that comprising male service and lodgings/business/public domain, the former being also more withdrawn from the street than the latter.

Viewed from a street (or a vestibule) perspective, among all day living spaces, the *sala de visita* lies in the shallowest level, always on a ring, and is the most integrating space in three out of four cases (the fourth having the daily *sala de visita* .as the most integrating space) whereas the *cozinha* is deeply set and the most segregated. As concerns living and dining arrangements when these functions are combined (two cases) this space features in the centre of the integration scale. These functions are split in the third case discussed with the space used for living taking precedence over that used for eating which becomes quite segregated. In the larger house, a similar trend occurs since the setting for informal receiving (which associates in use with that of a living room) also lies in the integrated half of the scale with the daily meals room in the segregated half.

In all cases, at least one bedroom (or *alcova*) lies on a ring and is more integrated than the others, the main corridors in the family storeys also lie on a ring and constitute a hub of movement and in the houses with a male slaves' quarters, this space lie at the rear of the integration scale.

The addition of the street does not affect the order of integration as regards main day functions, increases average integration in three cases, by reinforcing the links between family and service worlds, and may increase or decrease differentiation, both general and functional although a pattern underlying these movements has not been identified. The public space is always very segregated. A strong gap in terms of accessibility sets street and main reception room apart in all cases but in the *sobrados* of Recife this gap is much narrower, specially in the house of a 'wealthy man'. It seems, therefore, that in the last two examples, the hypothetical possibility an outsider has for accessing the complex is not much less than that enjoyed by a visitor already stationed in the main reception room, a fact which suggests that in these cases visitors are assigned a space more neatly set aside from the hub of movement, more clearly formalised, thus.

Two distinct trends seem to emerge from the redevelopment of the permeability graphs to account for outdoor links when alternative routes to inhabitants and informal visitors are considered. In the first two cases — houses in Olinda — when the carrier is added, the configuration alters with graphs becoming shallower, average integration increasing, the living/dining room (and, to a certain extent, also the kitchen) being pulled up the RRA scale, the carrier itself constituting a powerful focus of integration and the differentiation among key functions decreasing significantly.

Nothing of the sort happens in the *sobrados* of Recife. In the smaller complex, the addition of a carrier, although centrally located in the order of integration, improves only minimally the average RRA, does not alter the configuration except for the reduction of one depth level and strengthens hierarchy within the complex. A shadow of this pattern also occurs in the second example with the system becoming only a trifle more integrating and differentiation increasing slightly.

6.3.3. A little speculation

If the scanty sample above may be taken as representative of colonial houses at all it looks as if in these dwellings a strong polarity exists between the *sala de visita* and the kitchen, the first being the locus of integration, the second of segregation even when the family domain only is taken into consideration.

It seems also particularly interesting the fact that the main reception room, semantically and functionally a space for visitors, is very integrating whereas the street itself is invariably extremely segregated, as if outsiders needed to be kept at maximum distance until proven worth of being raised to the *sala de visita* , a hub of integration among functional cells, the locus of male hospitality and, it seems, a terrain for encounter between inhabitants and outsiders. It should be stressed that in the cases in which the gap in accessibility, setting *sala de visita* and street apart, is reduced, this seems to be a consequence not of greater proximity as regards the public domain but of greater isolation surrounding the visitors' locus which, nevertheless remains less segregated than most function spaces in the complex.

Smith has stressed the clear distinction between the family and the public domains in colonial houses and referred the front room as a centre of colonial family ceremonial life[254], an assumption confirmed by countless reports, whereas the back room is commonly referred as the place where women and children spent most of the time.

In Freyre's[255] words the *casa-grande* was essentially a place where the *pater familias* safeguarded valuables and women whereas in *casas de sítio* and *sobrados*, by means of the *varanda*, the balcony and the window opened onto the street, the seclusion of women began to decline[256] . However, he reckons, this was not an easy process, for the Brazilian patriarchalism in moving from the rural dwelling around the sugar plantations and mills, to the urban areas did not interface at once with the streets. The fiercest struggle evolved around

[254] Smith, op.cit.p.120.

[255] Freyre, Gilberto. Sobrados e Mucambos. José Olympio Ed., Rio de Janeiro, 1981 (referred ed.), p.34.

[256] Idem, p.154

the women whom the patriarch wanted locked up inside the *camarinha* (another designation for *alcova*).

Freyre's analogy of *casas grandes* as a strong-box for women and assets seem to fit all examined cases well enough. Availability and choice of access is a conspicuous privilege of the front, male-related room whereas the back room is a lot more secluded and may only be reached through the central corridor in three cases. Although in the larger example, the informal reception room was referred by Vauthier as *reigned over* by the lady of the house and was, in fact, the most integrated space among chief day rooms, the author states that one had to gain status of intimate friend before being admitted to that space. Furthermore, those gatherings also appear to have been held in the presence of the gentlemen of the house, at least when male guests were invited.

On the other hand, the balcony, a supposedly means of female emancipation, was shown to hold a quite segregated position in those houses. Seeing is not approaching and if any *liberalising* property may be attributed to balconies, this did not go beyond visibility. Another vantage-plus-segregation point is the little corridor, disguised between the two *alcovas* in the house of a 'respectable' family, a concealed path into the front bedroom and to its glass-panelled door through which, prying infantile and female eyes could inspect (but not join) visitors.

As regards the accommodation of slaves, its secluded character, a matter widely referred in the literature, seems to be confirmed in the present analysis and emphasised by the hierarchical gap between the male accommodation and the setting of formal reception which could not possibly be wider. However, it is perhaps interesting to point that in the house of 'a respectable family' the female slaves' room is as integrated as the front *alcova* whereas the male slaves' accommodation lies at the end of the integration scale. In the only other case to have an accommodation explicitly attributed to female slaves, the exact position of this space was not given thus rendering further comments on the issue, idle talk. Early experimental reworkings of the permeability graph to include horse sheds in both *sobrados* of Recife showed these and the male slaves' quarters sharing equal RRA values. Would this suggest that female slaves, as assets, shared similar terms with the women of the family whereas male slaves only levelled the value of horses? The investigation of this issue lies beyond the limits of the present study but might prove fruitful for further inquiries.

Seclusion, as has been seen, applies commonly in the four cases, and in this order, to outsiders, male aggregates and women whereas sociability is shared by family males and welcome visitors. Furthermore, the order of integration among sleeping quarters shows a stronger position of one (or two) of the *alcovas* in relation to other sleeping chambers. As, in three cases, these happen to be the room or one of the rooms leading to the *sala de visita* and authors refer to the *alcova* whose glazed door can be seen from the front room as the master bedroom, its integration and distributed position in the graph may perhaps emphasise a surveillance role which corroborates the controlling character of the male presence.

Vauthier has stressed the secluded character of the back room which he terms as a sort of *gynaeceum* , where woman and children spent most of the day, concealed from profane eyes.

The back room is consistently more segregated than the first room in all cases from an interior perspective as well as when the street is considered. However, when alternative routes are added in the houses of Olinda this spaces either becomes the most integrating or follows closely the *sala de visita* in terms of accessibility.

Smith[257], referring one of the houses in Olinda, has noticed the integrating character of the back stairs and that of the yard (both represented here by the carrier) which connect the two 'worlds' by way of the back room. This property, confirmed by the inclusion of the carrier in both houses of Olinda, seems to be lacking in the *sobrados* of Recife analysed above.

Whereas the inclusion of alternative routes affects the accessibility of the back room, pulls the whole complex together, and reduces functional hierarchy in the first two cases, in the *sobrados* of Recife the system either becomes more

[257] Smith, op.cit.p.118.

hierarchized (third case) or behaves with indifference (fourth house).

Thus, it appears that in the houses of Olinda, a getting round the segregating position of their daily settings is conceded to women, via informal routes through the exterior and less discrimination is spread throughout the system.

As stated, the logic underlying the layouts of the examples examined so far appears to fit better into Freyre's notion of *women locked up as assets* than corroborate his claims of these buildings having constituted a means to their emancipation. Least of all the *sobrados* of Recife with their rigid immutable structures. However, they may corroborate another of Freyre's assumption: that which places the mid-nineteenth century as the apex (as well as the turning point) of the patriarchal model in Brazil. The dwelling type brought to light by Vauthier's letters seems thus to have constituted the spatial materialisation of that model.

On the other hand the fact that the secluded character of the back room is liable of great modification by the addition of outdoor routes in some complexes and not in others is alone a strong standpoint against the mainstream of writers who echo Vauthier and each other in assuming that colonial townscapes in Brazil were made up by buildings generated by a somewhat equal type of plan, replicated sideways or upwards.

Although the *rediscovery* of colonial values, around the third decade of this century has contributed a more or less consistent body of research on domestic space which began to appear in the 50's and 60's, most of what came out evolved mainly around formal and stylistic aspects, building techniques and materials whereas spatial organisation received very little attention. This failure to raise issues only made transparent by insights that goes beyond wall surfaces, or the mere arrangement of rooms, to contemplate the way they are structured may have been the main factor behind the assumption of colonial houses as seen-one-seen-them-all buildings.

All four plans presented here fit the front room-corridor/alcoves-back room pattern repeatedly referred in historiographical works. They also fit any morphological outline of early urban domestic architecture by being volumetrically, geometrically and stylistically similar, apart from having all been built in the colonial period and in neighbouring urban settlements. However, in their apparently striking sameness, two quite distinct models of spatial organisation are defined not to mention a number of subtleties that distinguishes each case individually.

The emergence of the two models — one rigidly hierarchized, another allowing for two clearly distinct spatial 'readings' — settled an initial perspective for the analysis of colonial remains in Recife that follows, and constituted one of the premises for the investigation of patterns of change in the eclectic houses which replaced the colonial townscape.

6.4. Exploring earlier remains

A special difficulty had to be resolved as regards earlier building plans collected from the DSE archives. The labelling of the spaces referred to the use residents gave those spaces in the early twentieth century, as the company was, of course, concerned with installing equipment to suit that use. Although collection was restricted to the plans which looked original (but perhaps for minor alterations) in the light of textual references and common knowledge, a few selected cases among the older multistoried *sobrados* seemed to have suffered some radical rearrangement of functions.

The colonial pattern of business, general storage, non-family males and horses accommodated on the ground floor and of household chores, and those who perform them, in the attic disappeared around the turning of the century with the dramatic reduction of labour force[258] and the arrival of piped water and other modern facilities. Plans were, therefore, turned upside down with kitchens and other service related activities transferred to ground floors, usually to the existing side extension, formerly a horse or storage shed, opening to the patio, or, when such was not there, to a newly built extension similarly located. So, in order to dig the original layout from these converted plans one had to rely on

[258] The slave traffic was discontinued after 1850, causing the price of a slave to reach a sum well above the means of most of the free population. This was aggravated by subsequent government bills freeing the newly-born and the elderly from captivity. In 1888 slavery was finally banned.

observation and to compare the plans of these houses to iconographical items and textual evidence. This, of course, implied some guesswork which, hopefully, will not result in serious distortions since great care was taken not to infer room functions beyond a point which seemed reasonably safe to go as well as to leave a few open alternatives.

Cases were numbered according to the size of their minimal living complexes. Numerical values (**tables 6.4a/b** and **6.5a/b**), permeability graphs (**figures 6.13** and **6.14**) and RRA values for all interior spaces (**table 6.6**) are arrayed in that order. Plans and respective permeability graphs are presented in **figures 6.4** through **6.12** and should be referred to as each case is discussed.

By comparing **tables 6.1** and **6.4a** it can be seen that surviving earlier pre-modernist houses are more integrated and more differentiated than the four examples examined in the previous pages, on average, and are predominantly dining room-centred/kitchen-segregated (**table 6.5a**).

Table 6.4b displays general and syntactic values for complexes grouped according to their building type (*sobrados*, *casas térreas*) and location (urban, semi-rural) and **table 6.5b** shows the RRA values of main day rooms and their differentiation, following the same arrangement.

Urban sobrados present higher asymmetry (1.454 av. mean RRA) than the sample, on average (1.324), and their function/transition space ratio is lower (2.4 against 3.4). Semi-rural *sobrados* are even more segregated (1.472) although having a smaller proportion of transition spaces (3.3). These categories include dining-centred cases and all of the reception-centred complexes found in the sample when this is viewed in terms of interior spaces. Semi-rural *casas térreas* are more integrated (1.193) and less differentiated (0.82 mean BDF) than their urban counterparts (1.302 av. mean RRA) which constitute the most differentiated complexes in the sample (0.75 BDF), on average. Those are either dining-centred or double-reception-centred whereas urban *casas térreas* are all dining-centred but may be kitchen- or reception-segregated.

When alternative routes are added all clusters become more integrated and less differentiated but this reduction in differentiation is not significant, according to paired T-tests. The front door link to the public space reduces average mean integration for all groups except for urban *sobrados* which become more integrated.

Differentiation among day rooms is lowest in urban *sobrados* and highest in urban *casas térreas*. It decreases when all entrances are considered for all groups, except again for urban *sobrados* .

Despite alterations in integration and differentiation the integration hierarchy among chief day rooms holds regardless of how complexes are approached for *sobrados* whereas *casas térreas* may suffer some genotypical restructuring.

6.4.1. ***Sobrados***

Although it is usually advisable to start a spatial analysis from the simpler examples — in this case, the *casas térreas* — and then proceed into the more complex ones, the inverse path was chosen to introduce this insight on the configuration of colonial remains in Recife, since the *sobrado* has always been the focus of interest regarding colonial domestic architecture,and the results from the investigation developed above, were thought to provide an initial basis against which the sample could be checked. Old *sobrados* were precisely the hardest items to collect in the sample. Their original layouts of multiple cubicles were very difficult to adapt to modern needs, nuclear families and a radically reduced domestic household. Therefore only four cases of such buildings plus three others of multistoried semi-rural houses met the requirements and restrictions stated above, yet there being no guarantee of a one hundred per cent original layout. Possible alterations in these plans seemed, however, to have been of minor importance and shall be discussed.

The sample comprises the plans of four multistoried buildings, of typically urban aspect, located in the central borough of Boa Vista whose occupation was initiated as early as the seventeenth century. The other three may have been former rural seats or/and seasonal residences or very early instances of suburban residences.

House 15, in Boa Vista, (**fig.6.4a**) translates into a permeability graph in all aspects related to the ones resulting from the traditional *sobrados* of Recife, pictured by Vauthier. As has been said, there cannot be an absolute certainty regarding the use of each room. However, by all accounts, the *sala de visitas* is the front room on the first floor, in this case, space 8, opening to the balcony, an element always associated with the main reception room in traditional *sobrados.* As in all four iconographical examples, no other family living space is shallower than this room in the graph rooted from the street, a position maintained, regardless of the complex examined. This is also the most integrated cell. Judging by historical references, the back rooms 6 and 3 could either be the main dining room and kitchen or a living room and the dining room, respectively, with the kitchen being space 4. In the first hypothesis its position on the RRA scale falls between the main reception and the kitchen, remaining as such when the complex is reworked, a fully tested colonial pattern. In the second assumption the living room falls between the *sala de visita* and the dining room which would share an equal RRA value with the *cozinha*, a pattern coherent with the cases previously viewed as concerns reception and living room but not so much in terms of the articulation between dining room and kitchen, the first hypothesis being thus more acceptable.

On the other hand spaces 20 and 17 do alter when the carrier is introduced. However, these ground floor cells may have been knocked into larger front and back rooms in the turning of the century as it seems unlikely that a service passage (disguised behind the stairs) should be needed if there had not existed a partition wall splitting space 20 into a transition space and a cell, the same applying to space 17. This plan was reworked on this supposition and another alcove (matching the cell on the second floor) was added to the first floor. The model fit even more strongly the pattern found for Vauthier's examples with the new alcove becoming more integrated than the other, the two ground floor spaces very segregated and no alteration occurring when the exterior was added.

What has been said about house 15 applies to *house 20* (**fig.6.4b**), in the same street, except that here there does not seem to have occurred any alteration in the plan but for, perhaps, the addition of some extra cells to the side extension and the knocking through of space 1 into one cell. Reworking the complex to explore such possibilities did not change much except that space 24 (male slaves?) became consistently very segregated even with the addition of a carrier. As in the previous example it is unclear whether space 9 constitutes a living or a dining room. In the first hypothesis the dining room would most probably be space 4. Either option fits the R>E>C pattern.

In *house 13* (**fig.6.5a**), also in Boa Vista, the *sala de visitas*, space 3 and the first floor alcoves lie at depth 5 from the vestibule, the shallowest for function rooms in the family living complex. Space 3, the most integrated function space in the family storey, should be the living/dining room judging from comparative observation with historical evidence. There are no clues for the use of room 13, the most integrated of all function spaces but its position on the ground floor of a urban *sobrado* is suggestive of a business or a service related function in which case the trend for these areas being very segregated identified so far would have been disrupted in this particular example. However, it seems reasonable to assume that this space had once been divided into smaller rooms for accommodating male guests, slaves or goods, and that these cells were later knocked into the large living/dining room in use at the time of the DSE survey. Some speculation was carried out on this line by splitting space 13 into two connected spaces. The door connecting spaces 13 and 10 was also closed, as it is believed that the latter was a horse shed, formerly accessed from the yard and later turned into a kitchen. Space 13 became a lot more segregated then. Further exploration was done by splitting space 4, an unusually long and over connected alcove — into two alcoves. The *sala de visitas* gained some integration and space 13 became more segregated still but the living/eating room remained the most integrated family day room. Some patterns match closely the trends identified for urban *sobrados*: spaces 1 and 2, copa and kitchen by all supposition, are more segregated than any family function rooms; the balcony is very segregated (the most segregated first floor space, in this case); space 16 — very likely to have been either a store or a male slaves quarters — is the most segregated ground floor space albeit less so than the kitchen and the copa.

House 17 (**fig.6.5b**), also a urban *sobrado* situated in Boa Vista has a quite different layout with its main entrance on the side as the building location, on a corner, allows such arrangement. The original functions of the ground floor spaces are obscure but although a balcony does not demarcate the main reception room it would most certainly be space 8 with the dining room in space 6 and the kitchen in space 1 (a *copa* being space 3) or 2. In any alternative the *sala de visita* is no deeper than any other function cell in the main floor and the integration scale among chief functions ranks dining room, reception room and kitchen regardless of how the permeability graph is worked out.

The next three cases are semi-rural colonial dwellings with more than one storey in the sample. These houses, as others which shall be discussed later on, were then located in areas outside the city centre and would not have conformed to the layout of the urban *sobrado.* They may represent living examples of the so called *casas de sítio*, former holiday dwellings favoured at once by foreign residents, or of early purpose-built suburban dwelling.

Eating as the focus of integration is also the case in *houses 14* (**fig. 6.6a**) and *19* (**fig. 6.7**). The former is located in the fringes of Boa Vista, the latter in a distant borough (Dois Irmãos) by the left bank of the Capibaribe river and fits the profile of a country estate seat or of a *casa de sítio* in all aspects. These houses by their location and layout would have all main living spaces on the ground floor and the service areas in an extension at the back, usually connected to the dining room by the *copa.* Space 13 in house 14 and space 20 in house 19 meet such requirements and are the most integrating spaces. Kitchens, supposedly spaces 15 in the former and 12 in the latter, are very segregated whereas the *salas de visita* (21 and 23, respectively) rank in between the two. Again, in both examples, the *sala de visita* lies in the shallowest depth level and on a ring, the dining room, also on a ring, lies in an intermediate depth level and the kitchen, not on a ring, is deeper than the two. When the outdoor is considered all three are pulled down to the shallowest level but the pattern of integration among main day rooms does not alter with the carrier situated between the dining and the visitors' room. The public thoroughfare, when considered, is more segregated than any of the three functions. As the rear left side block in house 19 may have been a later extension, the plan was reworked to exclude these spaces. The result was nearly the same, except that in the reworked graph, carrier and *sala de visita* shared equal RRA values, thus emphasising the integrating property of the carrier.

House 21 (**fig.6.6b**)is a suburban or semi-rural residence located in the borough of Graças in, a neighbourhood developed as a residential suburb during the mid-nineteenth century. In this case, the *sala de visitas* takes over as the most integrated day living room (space 25), followed by the dining room (28). The *cozinha* (24) is very segregated. The pattern holds when the links with the public space or with the carrier are considered, the former being very segregated and the latter very integrating. The thick walls at the back of spaces 20 and 27 suggest this to have been a load bearing structure and therefore the rear wall in the original plan although the equally thick walls further back indicate that if that area was, in fact, an extension it must have been a very old one. The graph was thus reworked with space 27 considered the dining room and space 20 the *copa*, linking 27 to a kitchen in the position occupied by space 21. The pattern remained the same.

Inhabitants (minimal living)

Six of the seven examples above are transition-space-centred. Three transition segments lead the RRA scale in two cases (houses 14 and 17); four in two instances (houses 13 and 21); five in another (house 20) and seven in house 15.

More transition segmentation correlates only loosely with segregation, semi-rural complexes tending to present a much higher function/transition space ratio than urban dwellings but compatible levels of mean integration.

In the urban *sobrados* all permeability graphs show a central circulation core with branches representing each floor but whereas these constitute a ringy web in houses 13, 17 and 20, in house 15 a single upstairs ring can be found and this contributes to its being the most segregating complex in the sample. A similar structure can be found in two semi-urban dwellings (houses 14 and 21), but in these, the main living quarters are transferred to the ground floor and function as well as transition spaces alternate in the central string. These last aspects are also found in house 19, where the whole complex system articulates around the dining room. House 19 is precisely the case located further from the city centre and is believed to have been a former country seat. The common grounds between the accessibility graphs of the urban *sobrados* and of houses 14 and 21 as well as between these and house 19 place them in an intermediate position in relation to urban and semi-rural structures and suggest these to have constituted early cases of suburban residence.

Inhabitants and visitors (minimal living plus the street)

The front door link to the public space does not alter the hierarchy between principal day functions in any case and has little effect in the urban *sobrados* that become slightly more integrated. Two semi-rural cases 14 and 19) become more segregated and house 21 follows the tendency manifested in urban residences, a fact that emphasises its compromise character also stressed by its being a reception-centred complex.

Inhabitants extended complex (minimal living plus carrier)

The analysis of the plans collected from historiographical sources revealed two strong tendencies which are manifested as complexes are approached differently: one allows for diverse reading of the system according to the user, one does not. As has been seen, in the oldest house in Olinda, when alternative routes were considered, the interior spatial logic of the *sala de visita* more integrated than the *sala de jantar* more integrated than the *cozinha*, was reconstructed into a *sala de jantar>sala de visita>cozinha* pattern, with less differentiation among these spaces; the R>E>C genotype was greatly modified in the other house in Olinda with a dramatic reduction in differentiation among those rooms and a considerable increase in integration for the *sala de jantar*, both R>E>C and R=E>C found for Vauthier's sketches remained unchallenged whereas differentiation among key spaces was, indeed, strengthened.

Those trends appear under a slightly different guise in the seven buildings described above. The genotypical arrangement of main functions remain unchanged regardless of the approach, as happens in three of the four reference plans, but diversity can already be found within the minimal living complex whose functional core may evolve either around the main reception room or around the dining room. A comparable pattern of change, according to the way the complex is approached, was also revealed in the grade of differentiation among key functions. In house 21 the BDF value shows a radical reduction in the differentiation among main day functions, the strongest in the sample, which changes from 0.859, for the minimal living complex, to 0.987, when alternative routes are taken into account. The same applies, less strongly though, to houses 19 and 14 which alter from a 0.914 to a 0.941 BDF value and from a 0.928 to a 0.935 BDF value, respectively. In houses 17 and 13 this slacking in hierarchy is irrelevant, from 0.967 to 0.969 and from 0.972 to 0.974, respectively. House 15 suffers no alteration and in house 20 the differentiation is, indeed, increased, although this increase is also neglectable (0.928 to 0.927). As the first three cases are of semi-rural dwellings and the last four are all urban, findings suggest, again, an opposition between a very stiff spatial structure among urban dwellings and a much looser system, one open to diverse readings, in the outskirts. Furthermore, in two out of four urban *sobrados*, 15 and 20 — precisely the ones most rigidly structured — the locus of integration centres in the visitors' room whereas in two out of the three semi-rural houses the dining room is the focus of integration. Two *sobrados* — the ones with what seems to be a slightly looser spatial structures — also present the *sala de jantar >sala de visitas >cozinha* trend. The only semi-rural residence organised under the R>E>C pattern is, however, the one to alter more radically in terms of functional differentiation when the carrier is accounted for, in the sample.

Thus, if such a reduced sample may be taken as representative, results suggest that a rigidly hierarchized pattern of spatial configuration opposing visitors to inhabitants, males to females, and social to familial — the receiving>eating>cooking fixed model — associates with the multistoried urban *sobrado* of central Recife (three out of six cases, Vauthier's included) whereas an unchangeable but more or less modifiable pattern of integration, centred around the *sala de jantar* — the eating>receiving>cooking theme — present in two out of the three semi-rural buildings seems to be related with the spatial structure of the *casas de sítio*. In addition, it is also suggested that the latter correlates better with an integrating carrier space that has the power to approximate functions and reduce hierarchy, whereas in the former the carrier is deprived of any significance, being also quite segregated.

These hypothesis could only be fully tested if a comprehensive sample of colonial plans were available and is therefore beyond the limits of the present work. However, what seems to be of key importance here is the fact that two strong trends have been revealed thus constituting a valuable standpoint for the investigation of other colonial types and, specially, for the analysis of the products which succeeded them — the eclectic house.

6.4.2. ***Casas térreas***

No sloping sites in Recife allowed for the type of half two-storeyed, half one-storeyed dwellings common in Olinda and other hilly colonial towns. The compromise between *sobrados* and *casas térreas* in the plain valleys of Recife took the form of one-storeyed houses with an attic resulting from the ample space under the roof formed by the steep side gables. These are houses where all main day living rooms and some of the bedrooms are situated on the ground floor, with the attic usually containing sleeping chambers and storage space.

Three attic houses feature in the sample. *House 18* (**fig.6.8a**) located just outside Boa Vista, in Paissandú, an area already well defined in urban terms in 1855 according to cartographical data, is part of a long row of identical buildings occupying the entire frontage of the plot and can be considered as typically urban. *House 12* (**fig.6.8b**), on the banks of the river Capibaribe in the borough of Graças, fits the picture of a *casa de sítio* in every aspect: generous grounds, exuberant orchard, shady terraces and all, having probably been built prior to the development of the area. In the vicinities of house 12, *house 16* (**fig.6.8c**) is a compromise between the two, with its frontage neatly aligned with that of its neighbours, in one of the first thoroughfares to be occupied when the area was developed in the mid-nineteenth century.

House 18 conform to the eating>receiving>cooking pattern for all complexes and presents only a minute slackening of differentiation (0.950 to 0.957) when outdoor routes are considered, although the geometrical constraints of its type of occupation have been counterbalanced by considering the outside as one space, that is, by assuming that one could go round the corner and enter the complex by the front door or otherwise indistinctly, as stated in chapter 1. In house 12, the E>R>C theme breaks into one where both the *sala de jantar* and the garden (carrier space), when considered, constitute the focus of integration whereas differentiation among key functions drops from 0.952 in the minimal living complex to 0.973 with the system redeveloped to include outdoor links. In house 16, the *sala de visita* and the *sala de jantar* share top-integrating position among main day rooms when the minimal living (with or without carrier) is considered, the former becoming more integrated than the latter when the street is considered. Since the only access to the kitchen is through the back yard, a fourth rearrangement of the graph was done with this space being directly linked to the carrier. The reception and the dining room remained in the most integrating position among ground floor rooms and the newly added space became the most segregated.

Thus, again a pattern of integration centred in the dining room and in the carrier space was found in the house that conform to the requirements of a *casa de sítio*, a tendency for minimising the role of alternative entrances correlated with that of an urban aspect and the case which seems to have originally been an early suburban residence showed an amazingly well-balanced compromise between the two trends.

The sample includes four other instances which assemble features of former holiday dwellings or early suburban residences. These are detached or semi-detached one-storeyed houses, two located in Graças: *houses 9* and *1*; another, *house 7*, in a nearby neighbourhood, is located in a side street connecting the two oldest roads linking the centre to the hamlets on the left bank of the Capibaribe; lastly, *house 11* is situated in Madalena, a posh area already punctuated with smart residences in the early nineteenth century.

House 7 (**fig.6.9a**)conforms to the eating>receiving>cooking pattern for all complexes and reduces from a striking 0.789 BDF value to a much less differentiated value (0.863) when the carrier, the second most integrated space, is considered.

In *house 9* (**fig.6.9b**) the E>R>C pattern is altered when the inhabitants outdoor routes are considered: the carrier space becomes the focus of integration, the *sala de visita* and the *sala de jantar* become equally integrated and come second whereas the *cozinha* remains quite segregated. Differentiation among the three functions drops from 0.872 to 0.942.

House 11, **(fig.6.9c)** also presents a spatial arrangement focused around the dining room with or without carrier but when the latter is considered it becomes a powerful integrator, whereas differentiation among main day rooms drops from 0.959 to 0.971. The model alters when the visitors' perspective is viewed with the main reception room becoming the focus of integration.

In *house 1* **(fig.6.10a)**, the visitors' and the dining room share equal RRA values in an interior permeability only complex and the main reception room also takes over when the street is added. As here the kitchen is only accessed by an outdoor route, this space was added to a fourth redevelopment of the graph. The settings for receiving and eating shared again the focus of integration and the kitchen ranked behind in the RRA scale.

The above cluster further emphasises the integrating property of the dining room and the powerful role of the carrier for holding the system together and for levelling its inner hierarchy in terms of the inhabitants complex. Two of the four cases reinforced a pattern (identified in house 16), which seems to translate a sort of compromise between the two major genotypical trends identified so far. It looked particularly interesting how the 'urban pattern' manifests itself when the networked is viewed from the perspective of a formal caller approaching the house by way of the front door, with the main reception room taking over as the most integrated space.

The last group of colonial houses to be investigated comprise seven one-storeyed dwellings here considered as urban although some of them are actually located in suburban areas. These conform, however, to the type of ground occupation proper of colonial urban settlements, a strong indication that such buildings were erected — often in rows and for rental purposes — when those areas had already been or were being developed into suburban settlements. *Casas térreas*, specially fully attached ones, have commonly been referred to as the dwellings at the bottom of the social ladder in colonial times, and more than any other dwelling type have been considered the quintessence of monotony, hardly deserving more from historians and chroniclers than the assertion that they constitute a maximum reduction of the ubiquitous front room-corridor/alcoves-back room arrangement of the urban *sobrado* lowered to ground level. However it was precisely among this group that the most variety in spatial configuration was found in the present study.

Two cases only — *houses 10* and *2* (**fig.6.10b** and **c**), both in Boa Vista — conform to the eating>receiving>cooking pattern of integration no matter the spatial approach and in both cases the carrier is a powerful integrator, being situated in the most integrated half of the RRA scale (sharing top position with the dining room in house 2) and greatly reducing differentiation (general and functional) in the system. *House 4* (**fig.6.11 a**), in Graças, is organised under the same pattern in terms of interior spaces, but shows a different reading when all outdoor routes are considered with the *sala de visita* becoming more segregated than the *cozinha*.

In the other four instances the hierarchical arrangement ranking eating>cooking>receiving read by inhabitants from an interior perspective, unfolds into different patterns when all outdoor links and/or the visitors' route are considered.

In *houses 5* and *3*, the former in Boa Vista (**fig.6.11 b**), the latter in Graças (**fig.6.11 c**), the kitchen is more integrated than the main reception room in an interior space perspective but this function becomes the most segregated one (thus reverting the pattern into the dominant trend) when outdoor links, via the front door or otherwise, are considered.

In *house 8*, in Graças (**fig.6.12a**), the *sala de jantar >cozinha >sala de visita* pattern remains unaltered for all approaches with the carrier becoming more integrated than any day room and differentiation among main functions falling from 0.885 to 0.992.

In *house 6* (**fig.6.12b**), part of a row of small dwellings in Madalena, the E>C>R pattern is the same for inhabitants regardless of the carrier which although being quite integrated does not contribute to level differentiation which is, in fact, slightly increased. However, when the complex is linked to the street via the front door, the *sala de visita* is pulled up to the same position of the kitchen.

Inhabitants (minimal living)

Half of the *casas térreas* examined above are function-space-centred. In three others (4, 5 and 7), the central corridor tops the RRA scale; in house 11, two transition spaces come first; these are four in house 16 and five in houses 12 and 18.

All graphs show an upright string of alternate function and transition spaces and at least one ring attached to it. These can constitute very asymmetric structures with an almost linear core and a few functions linking to different segments (house 8) or conform highly distributed systems in which most spaces enjoy alternative accesses (4, 10 and 11).

In all cases (with or without an attic), dining rooms are the focus of functional integration although in two examples (1 and 16) this position is also shared by the main reception room. In nine cases the *sala de visitas* is the second most integrated main day living room against four in which this position is occupied by the kitchen .

Inhabitants and visitors (minimal living plus the street)

The anticipation of visitors increases the mean asymmetry in all but two cases (10 and 18) and may bring the *sala de visita* into or closer to the limelight of spatial articulation. When receiving and eating share equal RRA values in an inhabitants' perspective (two cases), the integration hub shifts to the main reception cell with the street considered, and in three out of four E>C>R types, the *sala de visita* is pulled up the rank, becoming as integrated as the kitchen in one case, and more integrated in two others.

Inhabitants extended complex (minimal living plus carrier)

All graphs fold into a net of shallow circuits when all accesses are considered. General integration increases in all complexes, this increase being quite radical in most cases and general differentiation is lower in 64% of cases. Functional differentiation reduces in all but one example

The hierarchy among day functions may shift from kitchen-segregated to reception-segregated and vice-versa in urban houses and one semi-rural dwelling shifted from dining-centred to double-reception-centred. The carrier is either the best or the second best integrated space.

6.5. **Two space codes and a few variations**

Despite the limited scope of the sample under investigation there are reasons to believe that strong patterns of spatial ordering have been revealed. Although the three main day living rooms could theoretically generate thirteen different inequality equations, only four were actually found as regards the minimal living complex in the sample, one of which accounting for over half (57.1%) of the cases. A logic of encounters which emphasises the setting for gathering to a meal, as the focus of integration, segregates the space where the meals are prepared, and leaves the territory where visitors are received half way along the two poles seems defined beyond doubt. The model appears to be all the more important because it has recurred across distinct categories — *sobrados*, *casas de sítio*, *casas térreas* — in a sample which albeit reduced aimed at assembling the widest possible variety of cases within a universe of colonial dwellings in Recife, social extremes excepted. However some nuances within the model are perhaps worth pointing out.

The character of the *sala de visita* as a setting for interface with outsiders is commonsensically (and semantically) established, waiving discussion. The same applies to that of the *cozinha* as the locus of interaction between female members of the family and their servants in a patriarchal slavocrat society such as that of colonial Brazil. The character of the *sala de jantar* is, however, harder to grasp and very much open to discussion.

As has already been repeatedly stated, textual references often place the 'back room', specially that of urban *sobrados* as a retreat for women, children and slaves and their daily activities. These would be interrupted at meal times, in houses where the back room doubled as living and dining room, to make way for the serving of meals. The question on who took part of these meals is highly controversial for whereas some references maintain that meals were strict family business and that in the rare occasions when a guest sat at table, women and children vanished from sight (as they often did from the main reception room), reports of foreign travellers often include detailed descriptions of meals — menus, tableware and manners much talked about — without excluding the presence of female family members. A thorough survey of the literature concerning this particular issue was not undertaken for the present study but, judging from what has been reviewed, most references about family and guests sitting together at meals associate either with quite wealthy families in town or with the summer season in the outskirts, enjoyed by a large contingent of middling to upper social groups.

Those concerns have led to a probing on the complexes organised according to the E>R>C inequality genotype in order to find out whether the gap in integration between dining and visitors' room was wider or narrower than that between the visitors' room and the kitchen. The first hypothesis, it was thought, might be an indication that visitors' and dining room were seen as part of a related complex uniting family and visitors as opposed to servants; the second, might point out towards a spatial geography in which family, visitors and servants were assigned distinct territories, the same applying, of course, in the case of an equal gap separating each function.

It was found that the difference in RRA value between the *sala de jantar* and the *sala de visita* is narrower than that between the *sala de visita* and the kitchen in six houses (11,14, 19, 12, 17 and 13), the inverse occurring with four others (7, 10, 4 and 18), whereas in two cases (9 and 2) the gap in integration between each pair is the same.

The first group comprise four two-storeyed (two urban, two suburban) houses, the upper class type of colonial dwelling *par excellence*, and two suburban houses (one with an attic, another one-storeyed) both of which, judging by dimension, location and type of ground occupation, fit the profile of a *casa de sítio*, or early suburban dwelling, therefore associated with medium to upper class inhabitants.

Conversely, the cluster of houses in which the gap between the dining and the visitors' room is wider or equal to that between the visitors' room and kitchen clearly tilts towards the modest side of the social scale. It comprises two suburban one-storeyed houses and four urban dwellings, three one-storeyed and one with an attic, this latter case being part of a large row of similar dwellings.

The overwhelming dominance of the E>R>C pattern of spatial articulation and the almost matter-of-fact way in which it behaves across distinct social groups could have led to it being considered *the* genotypical trend among colonial houses with the other models disregard as chance cases. However, some consistencies among plans organised according to the other genotypes suggest these to constitute also significant trends among colonial dwellings rather than the result of an odd-one-off situation, despite the reduced number of instances to support each trend.

As has already been seen, the pattern which ranks the main reception room as the centre of integration and as an obligatory link between the inhabitants' and the outsiders' realms was found in three plans in the sample, all of them *sobrados*, two urban, one suburban. As there are only four urban *sobrados* in the sample, the pattern accounts for 50% of cases among such types what, given the limits of the scope, might look as irrelevant were it not for the fact that this pattern recurred in three out of the four cases of earlier urban *sobrados* in Olinda and Recife (from the literature) and for the fact that the pattern was not found in any other house type when the <u>inhabitants</u> reading of the complex was considered, with or without outdoor routes. It should be noted that although the two main reception rooms share equal value in the larger of Vauthier's *sobrados* (where visitors' and dining rooms are doubled to account for more or less formal activities), the R>E>C pattern is also found for the less formal circuit.

Furthermore, the R>E>C pattern stood, unaltered, the three different approaches in all cases in the sample as well as in the *sobrados* of Recife, drawn from the literature, whereas it became modified in the house at Amparo and broke into the eating>receiving>cooking pattern, when the inhabitants alternative routes were considered in the seventeenth century (or earlier) house at praça de São Pedro.

This chapter started by asking whether models of articulation underlying the arrangement of domestic spaces could be found in colonial houses and how they associate with patterns of domestic cultural behaviour. It ends with two others: did a logic of spatial organisation centred in the setting for family gatherings to a meal (and occasional guests, perhaps) succeed one centred around an exclusive male/visitors interaction or have the two models always coexisted, the former being a materialisation of domestic relations in the less public-private polarised environ of holiday resorts and pioneer towns, the latter a response to the atmosphere of the urban core in an expanding harbour city.

The issue on whether the two trends reflect the twilight moments of one model and the dawn of another opens up a line of investigation that might prove fruitful but which is beyond the reach of the present study and will, regrettably, remain unanswered. However, findings are highly suggestive of a pattern centred on the setting of interaction between the master of the house and his visitors being the theme dominating the social spatial logic in the upper class urban households of nineteenth century Recife. Conversely, the fact that the locus of integration centres around the dining room in two of the three other residences equally associated with the upper social rank — the suburban two-storeyed houses — as well as in five of the seven other suburban houses, point towards this being the nexus of social encounter within the spatial geography of the *casas de sítio*, the much more relaxed scenario of summer, and later of all-year-round life, according to textual references. In the two remaining instances of suburban buildings in the sample, dining and visitors' rooms are equally favoured as the focus of spatial integration, a pattern which reads as a compromise between the two trends.

Moving back to the issue on weather the dining room associates better with a family-only or with a family-plus-visitors realm, it has been found that in two of the three houses (all unmistakably upper class), organised under the R>E>C pattern, the hierarchical distance between the *sala de visitas* and the *sala de jantar* is shorter than that between the *sala de jantar* and the *cozinha*. The not-in-the-least surprising results reinforce the social character of dining rooms in wealthier houses thus supporting reports that account the presence of guests to a meal as not having been an unusual aspect among upper colonial lifestyles.

The only other spatial pattern found in the sample — eating>cooking>receiving — is also suggestive of a genotype for although this embody a scanty four cases these are all tiny urban casas térreas, three of which conforming to the type formerly referred to as *casa de porta e janela*, meaning a one-door-one-window house, the lowest dwelling type in the urban social hierarchy, the real poor (these lived in shacks), excepted. The fact that these are the only cases in which the general highly segregated position of the *cozinha* is challenged does not seem too surprising since the occupants of *casas de porta e janela* were the one group of colonial city dwellers represented in the sample that might have had to do their daily house chores themselves although the literature generally states that even those at the bottom of the free urban society of Pernambuco could afford one slave and references of slaves owning other slaves are not rare. Needless to say that in the majority of these houses (6, 3 and 5), the gap between the *sala de jantar* and the *cozinha* is much narrower than that between the latter and the main reception room.

These findings illuminate a not-so-hard-to-guess aspect within the inner articulation of households of diverse social groups and exposes distinct facets of the setting used for meals. In the upper part of the social ladder this setting features as part of a territory open to family and visitors and diametrically opposed to that chiefly inhabited by servants; in the middling ranks the pattern of articulation involving dining room, visitors' room, and kitchen is suggestive of a distinct territorial definition for each community — outsiders, family and servants — neatly set apart; within modest dwellings dining room and kitchen seem to belong in a same or, at least, adjacent spheres which opposes the visitors' room, most probably reserved chiefly for outsiders.

Therefore, whereas the various internal spatial mapping of activities and their performers associate with the status of potential occupants, that of the role alternative accesses play in the way the complex is read and approached introduces a new variable which has to do with the type of settlement — urban, non-urban — in which the dwellings are sited.

When all alternative links to the outdoor space are considered, some quite radical remapping of routes offer a new perspective for approaching the complex and weaken hierarchical structuring among key functions thus showing the outdoor space to be a powerful integrator. This phenomenon predominates among semi-rural residences of all groups and within small urban houses but whereas in the upper ranks, the addition of outdoor routes, albeit reducing differentiation among territories does not alter the order according to which they articulate, this may occur in the homes of the less wealthy. Three out of seven urban *casas térreas*, suffered some shifting in the integration hierarchy of main functions when the carrier was introduced.

A consistent pattern behind this shifting was not identified since in one instance (house 4) the kitchen gained integration at the expense of the *sala de visitas* whereas in two other (houses 3 and 5) the exact opposite occurred. One suburban house (9) was also modified in the integration order of its main functions which shifted from a E>R>C pattern for the interior complex to a E=R>C when the carrier was added, a levelling of hierarchy between main day rooms that is coherent with the homogenising property of the carrier in non-urban residences.

This remapping of permeability paths appears to represent a crucial aspect in the organisation of colonial domestic space and points towards a much more flexible pattern of spatial structuring, and therefore of encounter present in seasonal residences, which corroborate textual references and period reports as well as in small urban households which never constituted the object of interest in those reports.

Figures 6.13 and **6.14** give a global view of the way the complexes are permeated by displaying all access graphs, rooted from the street and from a carrier space, and arrayed according to the size of their minimal living complexes.

The strong integrating property of the exterior can be perceived in the number of spaces it accesses. In eight cases, three spaces link to the carrier, in another six cases, four spaces link to the carrier. Four houses present a five-link connection, one house has six connections and two other, eight. In numerical terms the introduction of the carrier may increase the average integration of each house very much (reducing the average RRA value by up to 0.595) or very little (0.011). Among the ten houses most affected, eight are *casas térreas*, five urban (71% of cases) and three suburban (75% of cases). Two others are suburban two-storeyed buildings (66.7% of cases). The four urban *sobrados* are, of course among the six cases least affected, the other two being, not surprisingly, houses with an attic, one suburban, one urban.

This chapter ends with a summary of key configuration features identified in colonial houses. These served as general guidelines for the investigation of post-colonial houses in the next chapter. Without losing sight that what has been revealed are only some aspects of a rich and complex theme, it is hoped, that these findings may contribute to a better understanding of colonial domestic space and unfold into further research.

6.5.1 **A summary of colonial space basics**

Some of the properties listed below may be economically visualised in **figures 6.13** and **6.14** and in **tables 6.4** through **6.6.**

Generalities

- The four patterns of integration found for the minimal living complex are the same as regards the extended inhabitants complex. Twelve cases fall into the dominant eating>receiving>cooking pattern and the remaining cases are distributed among the other three —E>C>R (four cases), R>E>C (three cases) and E=R (two cases) — genotypes.
- Shifting from one pattern to another according to the way the complex is approached occurs in *casas térreas* (one with an attic) when the street is considered.
- The *sala de visitas* is shallower than the *sala de jantar* from a front door perspective in eighteen out of the twenty-one instances.
- The kitchen is deeper than the *sala de visitas* and the dining room in all cases viewed from the visitors' route.
- The *sala de visitas* is an obligatory step in the route from the front door

to other functional spaces in eleven cases and the *sala de jantar* (to the kitchen, at least) in seventeen cases.

- If the settings for *receiving, eating, cooking* and either the *carrier space* or the *public space* are arrayed in a four-point integration scale it results that the space used for *eating* and the *carrier* will lie in the integrating band of the scale in fourteen cases, the former being more integrated than the latter in nine, equally integrated in three and less so in two; *cooking* and the *public space* will fall in the segregation half of the scale in all but one case, the former being more integrated than the latter in sixteen cases.
- Following the stated above, within the visitors' perspective the setting for *eating* is positioned in the integrating band of the scale in all cases and that for *cooking* in the segregating band in all but two cases. When all outdoor routes are included *eating* is part of the integrating half in all but one case and *cooking* part of the segregating half in all cases.
- No case, regardless of its size or apparent status fails to have at least one alternative interior route — a ring in the permeability graph.
- In twenty houses the *sala de visitas* lies on an interior ring, the same applying to the dining room in sixteen cases. In every house at least one sleeping chamber lies on a ring.
- No less than three spaces are linked to the outside in any house and no less than two rings passe through the carrier.
- The three main day living rooms are linked to the outside in nine cases, the dining room and the kitchen in five others and the *sala de visitas* and the dining room in three others.
- The carrier is linked to three spaces in eight cases, to four spaces in six cases, to five spaces in four cases and to over six spaces in three cases.

Particularities

- Urban upper class houses tend to present a spatial configuration centred in the *sala de visitas*, that includes the *sala de jantar* within the social sphere and opposes the two rooms, in configuration terms, to the *cozinha*. The links to the exterior, as a rule, do not affect that structure.

- Semi-rural (or early suburban) houses are integrated around the *sala de jantar*. Outdoor routes, when considered, reduce the level of structuring among main functions and constitute a powerful focus of integration by offering various alternative ways into the complexes. In upper dwellings, the *sala de jantar* and the *sala de visitas* tend to define a family-plus-visitors territory as opposed to that of the kitchen whereas in less wealthy homes a wider integration gap sets those two rooms apart, suggesting a more restricted family use for the dining room. In any case, kitchens are very segregated.

- Alternative routes also play a powerful role among small urban households which are, too, organised around the dining room. In some cases, the three chief day rooms define distinct integration niches; in others, dining rooms and kitchens show approximate levels of accessibility whereas the main reception room is pushed into a more secluded sphere. These aspects suggest that in these complexes dining rooms are either a setting for strict family encounter, or part of a territory which binds preparation and fruition of meals together, as a family territory, and opposes that assigned for outsiders.

CHAPTER 7

ON POST-COLONIAL HOUSES OF RECIFE

This chapter investigates the spatial configuration of post-colonial dwellings in Recife. It seeks to identify patterns that are common to these and to colonial houses as well as those which are not, in order that signs of cultural continuity may be sorted out from the ones suggesting change. Findings will be compared to those resulting from the analysis of British homes, in the next chapter, with the purpose of clarifying the effect that the British presence may have had in reshaping patterns of cultural behaviour in Recife.

7.1. **The sample**

The conduct described in the previous chapter was followed for the collection of post-colonial house plans except that here the task was made easier because the time lag between construction and survey (by the water supply company) was much narrower, thus allowing for fewer alterations in the original layouts. Whereas the major problem for assembling the colonial sample was to find a minimum workable number of unaltered (or not radically altered) layouts, specially as concerns urban upper class buildings, the main difficulty for gathering eclectic house plans was to reach a balance among the various morphological trends within the category. The available plans concentrated heavily on the *stuccoed extravaganza* of the 1920's, because this trend dominated massively in the period but also because it coincided with a very active phase of the DSE survey.

A set of twenty-five plans was, finally, arrived at, four more than that which had been collected for the colonial sample, the difference in number being, however, rounded up by the extra four colonial plans drawn from historiographical records. Therefore, in order that the cases representing dwellings designed according to the multiple guises — combined or otherwise

— of the eclectic experience matched those typifying the colonial/classicist morphology, many post-colonial plans had to be set aside. This was done before any attempt to investigate their structures was taken by trying to balance the various eclectic trends and the number of cases in different neighbourhoods of the study area, and by disregarding very grand as well as very small complexes. The final ensemble concentrates in the dwellings thought to have been designed for families from middle middle to upper middle class, the groups more likely to have afforded the newest trends available locally but not to have afforded importing them from other countries.

However, among post-colonial houses no clear association between architectural features and status can be found in the manner of the neatly defined social opposition between *sobrados* and *casas térreas*. One has, therefore, to rely on much looser signs, such as size, availability of functions and neighbourhood to account for socioeconomic differences.

7.2. Analytical procedures

A set of basic space syntax techniques similar to those applied to the British subsample and to the colonial sample was used for the present analysis except that here, as the gap between survey and date of construction is not large, the labelling of rooms in the DSE plans were considered and speculative reworkings of graphs and reassigning of functions were spared. Again, in one case, the kitchen was accessed by outdoor routes only, which determined a redevelopment of the graph to include this function linked to the carrier space.

7.3. A comparative overview

Table 7 identifies the houses in the sample, **table 7.1** displays basic general and syntactic data for the different complexes examined and **table 7.2** presents syntactic measurements for the principal day functions in each complex, respectively. **Table 7.3** arrays all spaces in the minimal living complex according to their RRA values, from more integrated to less integrated.

If totals in tables 7.1 and 7.2 are compared to those from colonial houses, it can be seen that no radical differences appear to affect the two samples as a whole. The average number of spaces is slightly lower within the sample of post-colonial houses which are only a trifle more averagely integrated as concerns the inhabitants complex (with and without carrier) but slightly more segregated when the public space is considered. The mean BDF value shows post-colonial systems to be more differentiated than their predecessors but this increases structuring is not too strong in terms of the whole sample.

Among main day functions, shown on **table 7.2**, mean values suggest less differentiation within the system of interior spaces with kitchens becoming less segregated than in the previous period, the same applying to the extended inhabitant complex whose average figures are significantly more integrated for all variables, specially for kitchens and the carrier itself. Totals also indicate less segregation among main day rooms when the public space is considered, specially as concerns dining rooms and, again, kitchens. The street is however more averagely segregated among post-colonial houses.

Again, dining rooms are overwhelmingly the focus of integration, being the most integrating day room in twenty-two (88%) cases, as concerns the system of interior spaces, in twenty cases (80%), when alternative routes are considered and in nineteen cases (76%) when the public space is accounted for. The model of spatial articulation in which the *sala de jantar* is more integrated than the *sala de visitas* that is more integrated than the *cozinha* was found in twelve minimal living complexes, in thirteen cases when the carrier is included and in seventeen cases when the street is considered.

The second most frequent inequality genotype ranks the setting for eating followed by that for cooking and then, by the main reception room. It comprises six cases when the minimal living is viewed, five with the carrier taken into account and only two when the public space is included.

The R>E>C pattern was found in two cases (minimal living), four cases (with carrier) and five cases (with the street). The E=R>C genotype appears in one case when interior spaces only are considered and a new pattern, with the dining room being more integrated than the visitors' room and the kitchen, that share equal RRA values (E>R=C), included three cases for both minimal living and carrier complexes.

When the two samples are compared in terms of their minimal living complexes it can be seen that the E>R>C model has dropped from 57% of cases among colonial houses to 48% among post-colonial, the R>E>C pattern from 14% to 8%, and those with no differentiation between the two main living rooms has dropped from 9% to 4%. On the other hand the E>C>R genotype has increased from 19% to 24% and the new E>R=C trend accounts for 12% of post-colonial cases.

Diverse readings of the integration equation is also more frequent among post-colonial houses where in twelve cases (48% against 57% among colonial houses) the inequality equation among main functions is maintained regardless of the complex examined thus meaning that in the majority of cases within the later group, the addition of outdoor routes affects the way the complex is read. Furthermore, whereas among colonial houses, shiftings of genotype according to different approaches associate with modest dwellings, among post-colonial dwellings this is found across size and apparent social status. The property of the exterior for pulling the main reception room up the integration scale, which appears to associate with the visitors' complex as verified among small colonial houses, seems to hold among post-colonial dwellings of varying sizes.

The well-defined positioning of the principal day rooms as found among colonial houses, although slightly weakened, maintains its pattern in a significant proportion of the post-colonial sample. The *sala de visitas* remains being shallower than any other day function space in 68% of cases (86% among colonial plans), an obligatory step in the route from the front door to other function rooms in 48% (against 52% in the colonial sample) and part of an interior ring in 72% of cases (95% in the previous data). The *sala de jantar* is positioned between the main reception room and the kitchen, from a front door perspective, in 64% of cases (76% of colonial plans), lies in an interior ring in 60% of cases (71% colonial) and is a through passage for other function rooms in 80% of post-colonial plans (against 81% of colonial). The *cozinha* is the deepest day function from the front door in 92% of the present body of data against 100% of the previous one.

Whereas at least one internal ring — and at least one bedroom lying on it — was found in every colonial complex, this frequency has dropped to 76% among post-colonial plans. It should be noted that the designation *alcova* is no longer used, the term having been substituted for *quarto*.

The dining room and the carrier are, between them, more integrated than the main reception room and the kitchen in 60% of cases (66% previously) and the kitchen and the public space are more segregated than the main day rooms in 92% (against 95%).

All but one house fails to have at least three spaces linked to the carrier (none among colonial dwellings), which, therefore roots at least two rings in all but one case. The carrier is linked to three spaces in 44% of cases (38% previously), to four spaces in 36% (29% colonial) and to five spaces and over in 16% (33% colonial). The three chief function rooms link directly to the carrier in 40% of cases (43% before), dining and kitchen in 24% (same as colonial) and the two main living rooms in 4% (14% colonial). In five plans, 20% of cases, the *sala de visitas* and the *cozinha* link to the carrier, a new pattern as concerns the previous sample.

7.4. <u>A general approach</u>

Figures 7.1b and **7.2b** show general and syntactic data for different genotypes in the subsample. No significant differences between the average mean integration of the clusters and that of the subsample as a whole is found except for E>C>R cases (1.523 av. mean RRA) which are (p.= 0.0002) more segregated. On the other hand, differentiation varies significantly with eating-centred/cooking-segregated complexes being more differentiated (0.736 mean BDF) and reception-centred (single and double) as well as reception-segregated ones, less so (0.855 and 0.822, resp.).

E>R>C and E>C>R cases become significantly more integrating when all the entrances are considered and all groups become more segregating when the front door link to the street is worked out although this loss of integration among E>C>R cases is not significant. E>R>C and E>C=R complexes tend to become less differentiated when alternative routes are considered and reception-centred ones to become more differentiated when the front door link is taken into account. Other fluctuations in average BDF are irrelevant. Functional differentiation reduces when the carrier is considered in all cases but this reduction is particularly significant among E>C>R cases.

7.5. A case-by-case approach

Figure 7 shows photographs of some of the houses which are to be analysed below and **figures 7.1** through **7.9** presents their plans and respective permeability graphs following the order in which they are being discussed. . **Figures 7.10** and **7.11** array all permeability graphs rooted from the street, through the front door, and from a carrier space, respectively, from smaller to larger minimal living complexes.

The present investigation initiates with a close look into the spatial complexes organised according to the pattern which not only dominates throughout the body of data, but is the one to present more and subtler nuances from case to case — the eating-centred/kitchen-segregated model.

7.5.1. E>R>C cases

Houses 25 and *33*, (**fig.7.1a** and **b**) are typical example of middle class dwelling designed according to the *bride's cake* guidebook of the 1920's, The houses are located in a peripheral area of Boa Vista which was by then quickly becoming part of the city core. Their morphological types (in terms of built shell), can still be found scattered throughout the town where they once constituted a huge contingent among middle class dwellings. In these, *sala de jantar*, *sala de visitas* and *cozinha*, follow one another in this order of integration, regardless of the complex examined and become a lot less differentiated when outdoor routes are considered.

In the permeability graph drawn from the front door, the *sala de visitas* of house 25 (space 7) is shallowest and the kitchen (6) deepest with the dining room (4) in-between. Internal rings link visitors' and dining room to two of the three bedrooms, one of which, certainly a master bedroom (8), is the third most integrated function space in the complex, following the dining room and the *copa*, and may serve as a an alternative route into the complex when these are considered, thus resembling strongly the role played by the front alcove in colonial houses except that in those earlier buildings the chief sleeping chamber linked visitors' and inhabitants' spheres by connecting interior spaces (*sala de visitas* or main landing) only. Albeit being adjacent rooms, the gap in integration between visitors' and dining room is wider than that between the former and the kitchen, a pattern suggestive of the two chief living rooms belonging in distinct spheres from an inhabitants perspective. However, when the public space is considered, the gap between *sala de visita* and *sala de jantar* is greatly narrowed what suggests that from a visitor's perspective these may be part of a same territory diametrically opposed to that of the service area. This also coheres with the layout of the plan which shows the *sala de visitas* strategically positioned so that, once the door connecting the two spaces is shut, visitors may enter and leave without interference with the rest of the house. In other words, the door has the property of shifting the mode, as concerns the dining room, from an inhabitants centred context to one of inhabitants plus visitors, both severed from the servants' milieu.

This study does not deal with outbuildings other than kitchens but early exploratory exercises including these spaces showed maids' bedrooms, such as the one in this example, to be the most segregated spaces in the majority of cases, a fact, again closely associated with the slaves' accommodation in colonial houses. Another common feature between these and semi-rural complexes relates to the role played by the carrier for although in house 25 the plot itself is positioned in the segregated side of the scale, it not only offers three alternative routes into the complex but dramatically reduces differentiation within the system: from 0.613 to 0.676 averagely and from 0.615 to 0.827 among main functions.

What was said of house 25 applies to *house 33* but for the fact that here in the layout, the *sala de visitas* (11) occupies the space that constitutes the master room in the previous example and another reception room occupies that of the main reception room. This cell (12) namely a *sala de espera*, (or waiting room) was a fairly common space in houses at the time, being usually small, directly opening to the front door, and designed to accommodate callers (specially unannounced ones) who sat and waited whilst the requested person (and sometimes the house itself) was getting ready to be seen. Its position emphasises an apparent purpose of detaching family and social spheres, since it constitutes a distribution joint between the two. As in the previous case, the carrier is quite segregated but has the property of reducing differentiation in the system from 0.79 to 0.837 and that among main functions from 0.832 to 0.934.

The following examples present quite distinct layouts but several spatial features common to the ones described above, a fact that emphasises the extent to which cultural needs find their way into spatial articulation regardless of physical constraints. The E>R>C genotype is maintained for all complexes; there is strong differentiation within main function rooms; wide gaps between chief day rooms suggest them to associated each with a spatial territory for each community; the carrier space reduces differentiation in the system. All these aspects are common to colonial semi-rural dwellings, being, once more, suggestive of a pattern of cultural continuity.

House 27 (**fig.7.1c**) is part of a large row of small dwellings, most probably built for rent in the early 20's, in Graças. Its permeability graph shows many similarities with previous cases: a shallow *sala de visitas* (8), a deep *cozinha* (2), the former and the *sala de jantar* (7), as well as some of the *quartos* lying on rings. What seems to have been a common desire to set the visitors' room apart from the rest of the complex, was resolved here by the addition of a hall distributing movement between this and the corridor. Again, the master bedroom (*quarto* 6) links social and familial worlds which are also well detached in terms of integration, represented by the gap in RRA value between the dining (the hub of familial living), and the visitors' room. Assuming that inhabitants could go round the back street and enter the yard, this route will level differentiation between main functions, from 0.789 to 0.863. The street is less segregated than the kitchen, and its addition reduces greatly the gap between the *sala de visitas* and the *sala de jantar* but only mildly that between the latter and the kitchen.

House 26, (**fig.7.2a**) also in Boa Vista, differs from the previous example only for the fact that a ringless branch, accommodating visitors' room (8) and master bedroom (6) splits from the hall so that the latter links to the main reception room only. Albeit fitting into a spatial model common among colonial residences in most aspects, its ringless structure adds a new element to that model. The kitchen (1) is more segregated than the street, when the public space is considered.

House 29 (**fig.7.2b**), locates in an area of Boa Vista whose occupation had long ago been defined in urban colonial terms with very narrow plots and no frontage recess. The syntactic picture is a well known one in graphical and numerical terms except for the fact that here, as in house 25, the carrier is positioned in the segregated half of the scale. This, however, does not prevent its being capable of reducing differentiation in the system. The street is the most segregated space.

House 34 (**fig.7.2c**)is another stuccoed fantasy reduced to middle middle class scale. The sequence of a shallow visitors' room (9), a central dining room (11) and a deep kitchen (2) translates its layout. In this case, as in the previous one, the visitors' room does not constitute a necessary route to other spaces but the master bedroom (assuming it is the front *quarto*, space 3) can still link visitors' and inhabitants' worlds. The plot is quite integrating and reduces functional differentiation from 0.76 to 0.803. The street brings dining and visitors' room closer and the former and the kitchen further apart, being also the most segregated space.

The plans of houses 27, 29 and 34 all show a bedroom and a toilet room only accessed by the carrier. These apartments, exploratory works have shown, are even more segregated than kitchens in all cases and as segregated as some of the nondistributed bedrooms, a result that resembles very much those found for female slaves' quarters from the literature.

Two other cases present the E>R>C pattern for all complexes:

House 46 (**fig.7.3a**) is the largest complex in the sample and has been built in a formerly marshland near the city centre which had been recently developed under guidelines vaguely inspired by the garden city movement. The Derby (named after a hippodrome in the area) soon became firmly established as a fashionable middle to upper class neighbourhood. Stylistically speaking, this example relates to loose *neo-colonial* guidelines. Despite the rather complex circulation network its spatial system bears a lot of similarity with a few others discussed. A ring encircles the two principal day rooms (both at depth 1) and the *sala de espera* (24) serves as a distributor for the dining (25) and the visitors' room (29), the former constituting a through passage from which the staircase, the service branch and transition spaces, leading back into the garden, root. A huge gap in integration sets dining room and kitchen (27) apart but the configuration bracket between the former and the visitors' room is also wide when interior spaces only are considered.

However, as seen before, when the street (or the carrier, in this case) is added to the complex the gap between the two rooms is narrowed and that which separates these to the kitchen widened. Needless to say that the servants' bedrooms 18 and 21 rank in the very end of the segregation scale. The layout itself joins *sala de visitas*, *sala de jantar* and *sala de espera* in a well defined cluster. The plan does not indicate whether the opening between the first two rooms was meant to have a door. However the very presence of the walls severing these spaces seems to signal, at least in symbolic terms, different territories. The model is, thus, strongly related to that found for colonial semi-rural residences in many aspects but here the presence of the carrier strengthens instead of levelling differentiation in the system, a pattern more closely associated with that of some urban *sobrados.*

House 40 (**fig.7.3b**), located in the principal thoroughfare of the lower to middle class suburb of Casa Amarela is a typical example of a *picturesque villa,* complete with steep roof, mock timber-framing, bay and bow windows. Its system is very much organised on a network of transition spaces, a pattern associated with urban *sobrados*, the exception being the through dining room (10) which accesses the entire minimal living complex. Again, the carrier increases differentiation among main day rooms, another property common among upper urban residences. These findings emphasise a tendency to amalgamate spatial features of distinct colonial types, already detected among post-colonial houses. A novel feature present in this house is its ringlessness. One single ring links interior spaces and this is confined to upstairs bedrooms, an aspect foreign to any colonial type, all presenting at least one essential day room lying on a distributed circuit.

Three cases are organised according to the E>R>C genotype in terms of interior spaces only but revert to the R>E>C pattern when the other complexes are considered. Again, they constitute very different buildings in geometric and stylistic terms. However, the spatial logic inside their shells is not only similar to one another but also to what has been revealed in the analysis of colonial homes.

House 22 (**fig.7.3c**) in the distant neighbourhood of Poço da Panela is an example of a dwelling with a façade displaying stuccoed elements proper of the second and third decades of the twentieth century but its internal layout suggests this to have been a much older building — a *casa de sítio* or early suburban residence — reformed, quite radically, in its façade and only mildly in its plan, at the time. The qualms on whether to include it in the post-colonial roll were cleared after reflection because it was thought that this type of conversion might reveal interesting aspects concerning change in spatial partitioning in order that new needs could be met.

The simple linear sequence of front room, corridor/bedrooms, back room, kitchen is the much talked about colonial standard ground arrangement but the permeability graph shows no alternative internal routes. The *sala de visitas* (5) is shallowest and the kitchen (6) deepest but each bedroom (1 and 2) links solely to a transition space, the corridor. The gap in integration among the rooms more directly associated with the three different communities of users is huge, specially that between the *sala de visitas* and the *sala de jantar* (4) thus signalling quite detached territories for family and visitors. However, when the plot is considered this differentiation is greatly diminished, as proper of semi-urban residences, specially as concerns that between the visitors' and the dining room indicating perhaps that the main reception room is also a family cell when visitors are not around. When the street is considered the whole picture is redefined with the visitors' room becoming the focus of integration, the gap between this and the dining room widened again in relation to that for the carrier complex although narrowed in relation to the minimal living system. The configurational distance between the dining room and the kitchen widens still, much in the fashion of urban *sobrados*. This shifting in genotype also associates with what occurs in urban *casas térreas*. This case is thus a clear example of amalgamated colonial properties plus the novelty of there being no alternative routes within the interior complex.

House 28 (**fig.7.4a**)is a late eclectic building in the neighbourhood of Derby, whose external looks are a simplified version of one of the trends fairly popular in the late 20's and early 30's, one which assembles basic stylistic features seemingly borrowed from Victorian suburban villas. Again, a ringless access graph displays a linear succession of function cells — *sala de visitas* (10), *sala de jantar* (7) and *cozinha* (9) — but here as the family *quartos* are on the first floor, the only transition ground floor space splits into a bushy ringless bedroom branch and into a linear ground floor branch in which the main reception room is a necessary route from the front door to the entire complex. Time of construction, exterior looks and layout are way apart between this and house 22 but the logic behind the two systems is much the same. Again, family, visitors and servants, as represented by the three day rooms, are neatly distanced but although the carrier brings in a neglectable reduction in terms of functional differentiation (from 0.963 to 0.967) this differentiation is entirely due to the gap separating both the visitors' and the dining rooms from the kitchen which is thus pushed back into a sphere well apart from what looks like a family territory, suggesting perhaps that when the inhabitants' extended complex is considered, the main reception rooms become part of the family milieu. These are, again, distanced when the street is considered with the main reception rooms becoming the focus of integration and the gap separating it from the dining room narrower than that between dining room and kitchen. The maids' quarters, at the rear end, are the most segregated ground floor rooms, when attached to the carrier. Again features belonging to colonial houses, urban and semi-rural plus a renouncement of interior alternative routes converge in this case.

House 43 (**fig.7.4b**) is a *neo-colonial* specimen, situated in a thoroughfare which connected the road from Olinda to Boa Vista in old times. Its interior may have been converted from an older building in the 20's or early 30's. Interior spaces are organised in a thoroughly colonial fashion, the 'string and rings' pattern, with the *sala de visitas* (22) at depth 0 (from an interior perspective), the *sala de jantar* (18) at depth 3 and the *cozinha* (15) at depth 5, the main reception room being a through space for the staircase hall. The three realms are well defined from an interior spaces perspective and become less compartmentalised with the addition of the carrier mainly because dining and visitors' rooms are pulled together, the same applying when the public space is considered. However, the main reception room becomes more integrated than the dining room when the plot and its paths are taken into account, a pattern only found among semi-rural colonial *casas térreas*. This suggests, again, that the *sala de visitas* may be a family setting as much as a place for receiving guests, an assumption emphasised by the narrow gap in integration which separates dining and visitors' room when either the carrier or the public space is considered. Bedroom 9, accessed by the kitchen only is, of course, the most segregated space whereas bedroom 12 (senior member of household, perhaps?) is as segregated as the kitchen itself.

The only case in the sample to revert from a E>R>C to a E>C>R genotype is *house 31* (**fig.7.4c**), a common dwelling type of the 20's with its fair share of stuccoed ornaments, located in Santa Amaro, a borough in the fringes of the city centre inhabited mostly by lower to middle middle class families. The 'string and ring' structure of day rooms and bedrooms displays the visitors'-dining-kitchen (9, 10, 7, respectively) linear sequence of rooms from the front door. The carrier does not reduces the differentiation among chief day rooms much but pulls the kitchen into the integration limelight thus rendering the gap between this and the dining room narrower than that between the latter and the main reception room. This is not too surprising given the social group of potential inhabitants in this particular case after this pattern had been identified among urban small dwellings. The presence of the public spaces thrusts the kitchen back into segregation and approximates family and guests. The maids' bedroom at the back of the yard is obviously more segregated than any day room if attached to the carrier space.

It seemed appropriate to include the only plan to have a kitchen accessed by outdoor routes in the E>R>C group since it adheres to the genotype when the kitchen is linked to the minimal living complex.

House 23 (**fig.7.5a**) is located in Torre, a former semi-rural resort by the river Capibaribe on the land once occupied by a sugar plantation and mill. It is a typical suburban chalet of the decades around the turning of the century, this particular case having been built in 1916, according to the date on the façade. This purpose-built suburban residence assembled about all that was available in terms of modern facilities and status display, from piped gas and crystal candelabra to fresco-technique wall painting, at the time. Its minimal living complex appears minute because various spaces (kitchen, bathroom, a library (or guests' room and study), among other cells, are only accessed through the terraces that frame the building. Terraces and, specially, the garden appear to have been the focal point of both interaction and wealth display with its geometrical flower beds, cast iron statues and fountains, elaborate wrought iron railings, complete with a *coreto* or folly, facing the road, which allowed a safe vantage point or the ladies of the house. This constitutes the very last of these devices, once popular among the rich, to have survived in the town.

The permeability graph of this case shows the usual linear sequence of *sala de visitas* (4) and *sala de jantar* (6) and the well established ring encircling the former and the master bedroom (1). The corridor is linked to all interior spaces. The garden is the most integrating space whether the kitchen is added to it or not. The kitchen, when considered, is well back in the integration scale what suggests that visitors' and dining room define a family plus guests realm, focused in the latter when all alternative routes are considered and in the former when the street is considered.

Inhabitants

Three dining-integrated/kitchen-segregated complexes (25, 31 and 40) are function-space-centred in the dining room but in the majority of E>R>C cases (22, 23, 26, 27, 29, 33 and 34), one transition space, usually a corridor, is more integrating than the dining room. In houses 28, 43 and 46, three transition spaces heads the RRA scale. Function/transition space ratios range from 1.5 to 10 with one case (25) having no transition space at all. The relation between these values and average asymmetry in the complexes is a lose one.

The 'string and rings' pattern dominates (25, 27, 29, 31, 33, 34 and 46) and appears modified in two cases, either for presenting just one ring (23) or an unusually long service branch (43). Four cases are ringless, two of which (28 and 40) showing a structure that looks alien to what has been identified so far in houses of Recife, and two others (26 and 22) present the usual string of alternate function and transition spaces splitting into dead-end cells. High mean asymmetry seems to associate with the disruption in the string and rings pattern with most segregated complexes being houses 26 and 43, although in house 46 — a permeability graph similar to those of colonial sobrados — segregation appears to associate with a very fragmented circulation network.

In the overwhelming majority of cases, distinct accessibility niches for each chief day room suggest these to demarcate hierarchized territories for activities and their performers.

Inhabitants and visitors

When the front door link is considered, general integration decreases in most cases. The gap between the visitors' and the dining room is narrowed thus signalling a realignment of territories to unite family and guests in a sphere opposite that of service-related activities.

In three cases (22, 23 and 28 the main reception room takes over as the focus of day integration. The public space is more segregated than any day function in all but two instances. In these the street is less segregated than the kitchen.

Inhabitants extended complex

When alternative entrances are considered, most complexes fold into a tissue of circuits through the exterior. In houses 46 and 43, graphs behave similarly to those of semi-rural colonial sobrados with the whole ground floor folding onto the carrier. In house 40 only one ring passes through the plot, a fact that accentuates the singularity of the case.

Integration increases in all cases and differentiation reduces in most complexes. Functional differentiation is radically reduced in most cases (22, 25, 26, 27, 29, 33 and 34), fluctuates in others and increases in houses 40 and 46.

In one case the main reception room becomes the most integrated day cell (43), in another the kitchen climbs the RRA scale and becomes more integrated than the visitors' room (31). The carrier sits in the integrating half of the four-point RRA scale in most cases.

7.5.2. Other genotypes

The examples below, although comprising fewer cases, present features identified in colonial houses and in the complexes examined above, some of which recombined. This suggests a pattern of continuity which is however also one of continuous evolution.

7.5.2.1. E=R>C and R>E>C cases

House 38 **(fig.7.5b)**, another example of *neo-colonial* design located in the vicinities of Derby, is the only eclectic complex in which both *sala de visita* (17) and *sala de jantar* (13) share equal integration values from an interior space perspective. Its layout translates into a permeability graph in which the linear sequence of day rooms is broken down by a ring connecting the *sala de visitas* and the *sala de jantar* that is set apart from the main route. These two rooms are positioned so that they form a distinct spatial cluster uniting family and visitors and segregating service-related activities, regardless of the angle through which the system is viewed. The visitors' room takes precedence over the dining room, as the centre of integration, when either the carrier or the street is considered.

The only two cases to conform to the pattern prevailing among colonial urban *sobrados* (R>E>C) show a series of properties common to that type as well as some others more closely associated with top semi-rural houses. The integration hierarchy among *sala de visitas*, *sala de jantar* and *cozinha* is as traditional as could possibly be and associates with urban upper class houses as does the fairly segregated position of the carrier and the gap between these settings; the narrowing of the gap between dining and visitors' room when the carrier and/or street are considered is a well tried and tested pattern among semi-rural top residences and the role the carrier plays in lessening differentiation within the system, ditto. However, an exceptionally novel property, described below, was introduced thus rendering these example as the first evidences, so far presented, of a series of subtle alterations whose traces appear scattered betwixt solidly established themes in the data under study.

House 42 (**fig.7.5c**) is perhaps the most elaborate case among the *Victorian villa* -like examples in the sample, built in an outstanding position in a square at the core of a development carried out around 1920 in Paissandu, fringes of Boa Vista. Despite the presence of traditional themes described above, a network of transition spaces allows for each room (except for the *copa*, space 17) to be entered without interference with what goes on in other function rooms which are however interconnected by the many rings (three on the ground floor and three on the first floor) in the complex. This association of ringiness among function rooms and a complex circulation system reads very much like a compromise between traditional spatial patterns and new cultural needs.

House 44 (**fig.7.6a**) is a simplified version of the *Victorian villa* format also located in Paissandu. Its complex splits into two distinct branches one accommodating the first floor rooms and another assembling all day rooms in a ringy network which although allowing for access around the main reception rooms resembles strongly the 'string and rings' pattern. The upstairs layout is an unusually ultra-ringy structure of interconnected bedrooms, each of which is also accessed by a lump of transition space. The assumed compromise between vintage spatial themes and newly-introduced ones looks all the more evident in this example whose layout has managed to maintain one of the most recurrent patterns among colonial domestic space — the possibility of moving straight from one setting of action into another — and at the same time to offer a choice of not having to do this, with the amazing result that every single function room is linked to another and still, each and every one, but for the *copa* (14), may be accessed by a transition space.

7.5.2.2. E>C>R cases

The next cases comprise houses whose interior spaces are organised according to the E>C>R genotype. As has been seen in the previous chapter, this model of spatial articulation associated with small urban homes, more specially with the *casas de porta e janela*, the homes of those at the bottom of the lower middle class scale. The model has also appeared in this body of data (house 31), when a complex of interior spaces ranking *sala de jantar*, *sala de visitas* and *cozinha* was reconstructed into that pattern with all alternative routes considered. This seemed to fit a situation related to the lower socioeconomic orders for it occurred only once and precisely in a house, located in a chiefly low middle class neighbourhood.

However, the roll of cases that follows can hardly be considered as representative of lower middle class homes. It assembles examples which range from modest dwellings to downright posh residences.

House 24 (**fig.7.6b**) can indeed be considered as low to middling middle class. It is a semi-detached suburban residence in the border between Madalena and Torre, the former a traditionally wealthy neighbourhood, the latter more mixedly occupied. The building sports a mild amount of stuccoed mouldings which places its construction around 1920. Its permeability graph is again a simple linear sequence initiating from the visitors' room with no rings and with key function rooms constituting an obligatory route to other spaces. The dining room (4) and the *copa* (5) leads the integration sequence, followed by the kitchen (6), the visitors' room (8) and the bedrooms (1, 3). However when either the carrier or the street is considered the model reverts to the dominating pattern organised around the dining room and the gap in integration between this and the kitchen becomes wider than that between the dining room and the main reception room, the same applying when the street is linked to the minimal living.

House 30 (**fig.7.6c**) is a middling residence of the 20's, located in Boa Vista and sited in a corner plot. Its permeability graph is the 'string and rings' type with visitors' room (9), dining room (8) and two bedrooms in rings. The plan is an almost replica of most middling one-storeyed eclectic houses seen so far, with main day rooms connecting and accessing bedrooms, one of which linking private, social and exterior zones. However, again, for an all-interior perspective, dining room and kitchen (5) seem to be part of a same or closely related sphere, a position which is emphasised by the inter-bedroom route which offer access to these cells, around the visitors' room, but cease at the level of the dining room. When carrier and/or the public area is considered the pattern reverts into the more traditional E>R>C model.

House 39 (**fig.7.7a**) could in no way associate with dwellings at the bottom of the social pyramid, being a posh-looking residence in the fashionable neighbourhood of Derby. It is yet another *victorianish* building located at the very heart of the referred garden-city-like neighbourhood. Its access graph is totally ringless and very much defined in terms of transition spaces although the dining room (15) is an obligatory way to the service quarters whereas the main reception room (17) is neatly detached from the rest of the house being entered from the staircase hall. The wide gap which sets kitchen (13) and dining room away from the visitors' room is maintained when the carrier is considered, a new pattern so far, signalling a more restricted reception use for the *sala de visita*. When the street is linked, the distance in integration among, visitors', dining and kitchen remains quite pronounced although the pattern shifts to the E>C>R genotype, a situation suggestive of well defined territories for each community although that evolving around the kitchen, continues to be the most segregated as far as ground floor spaces are concerned. Bedroom 12 (for maids) is, not surprisingly, the most segregated space.

House 41 (**fig.7.7b**) is the second (the first is house 23) of the only two plans representing the so-called *Swiss-chalet* style, very popular in earlier suburbs around turn-of-the-century decades. Its structure is that of a semi-rural residence through and through with a linear sequence of day rooms (visitors'-dining-kitchen), splitting now and again to access bedrooms, most of which lying on rings with the novelty of the kitchen (12) being more integrated than the *sala de visitas* (20), a pattern which, again, breaks into the dominating E>R>C genotype when the plot paths and/or the public spaces is considered. The multiple terraces here translated into a carrier space, are more integrating than any day room, so that the garden seems, again, the locus of encounter for inhabitants. The carrier reduces greatly the differentiation among main function rooms. The most segregated cells are space 16, labelled *gabinete* and space 1, unlabelled. Their location in the plan and the 'cabinet' label, which associates with the master of the house, suggest this cluster of cells (1, 8, 16, 17 and 21) to form perhaps a business-related zone.

The following examples, more than any, cannot in the least be taken as nothing but upper middle class. However, not only do they organise according to a pattern of internal spatial arrangement which pulls the setting for cooking closer to the integration hub than that for receiving but maintains this reading regardless of the routes linking the various spaces in the network and this to the public space. Their layouts are apparent replicas of a number of cases already examined but quite distinct facets of spatial interface are presented.

House 36 (**fig.7.7c**) stylistically affiliates to the *neo-colonial* flair, the last among the various eclectic trends and, therefore, should date from the late 20's or early 30's, being located in the vicinity of the Derby's central square. Its access graph again has no rings and the main reception room is an end point following a transition space. The dining room (15), however, is an obligatory path for the complex from the front door. Although being a key space in the articulation of the whole complex and therefore, for generating encounter among inhabitants, the dining room, in this case, does not seem to be *the* locus of daily familial gathering around a meal since the *sala de almoço* (luncheon room, space 12) is apparently the setting for common meals and the next most integrated day room. It is positioned, in terms of RRA value, much closer to the kitchen (13) than the dining room. Again, kitchen, dining and visitors' room (14) appears to be the physical materialisation of distinct communities but here, as in other cases seen so far, the layout suggests the existence of a very satisfactory and versatile strategy to bind dining and visitors' room into one sphere and away from the service area, or pull service and dining room into one compound and segregate visitors. The front terrace, represented by the carrier, plays the role of a waiting lobby or *sala de espera* in other similar cases, and adds a handy tool to that mechanism.

House 45 (**fig.7.8a**) is a large building in Casa Amarela, representative of the stuccoed flair but the rather economical amount of such elements in a house of its bulk suggests this to have been a late version of the eclectic voyage at the same time that an otherwise plain geometrical shell, defined by intersecting rectangular volumes, points towards an early influence of modernism. In its access graph, the linear sequence of main day rooms shows, again, the *sala de visita* (22) in a position which allows this setting to be united or segregated from the family realm according to convenience. Incomers may also choose whether to permeate the house by way of the dining (21) or the visitors's room, one of which will, however, forcibly function as a passage from the front door.

7.5.2.3. E>C=R types

The next three cases are rearrangements of the spatial logic described above and present the novel E>R=C genotype, thus emphasising what seems to be a strongly family-centred pattern of spatial articulation which segregates both visitors' and servants' spheres, reserving, however, the means to articulate family and guests and segregate servants or confine each community to a territory by the simple act of shutting or opening connecting doors.

House 32 (**fig.7.8b**), in the principal road of the posh neighbourhood of Manguinhos, Espinheiro, is sure to have been originally inhabited by quite wealthy people. It relates to the overdecorated trend of the second and third decades and its plan is entirely dominated by the large dining room which links front and rear terraces. The 'string and rings' access graph developed from the front door shows the linear array of a shallow *sala de visita* (11), a central *sala de jantar* (10) and a deep *cozinha* (7) as well as two of the three bedrooms lying in rings which link the main reception room, a seemingly transition space, labelled as *gabinete,* and another labelled as *toilette* (8), being probably a dressing room. The property to shift the oversized dining room into a family or a social setting looks conspicuous enough from the very plan, clearly defined into three zones, with that formed by the dining room and two of the bedrooms in the middle. Again, an inter-bedroom route allows for movement around the main reception room and interrupts at the level of the dining room.

House 37 (**fig.7.8c**) is another example of the eclectic 'Victorian guise' in the upper middle class neighbourhood of Aflitos. Its permeability graph shows the main reception room (14) set aside from the front door route but communicating directly to the dining room (15) which accesses the rest of the complex. The enclosed terrace (16) functions as a key element for reverting the dining room into a social setting and so does the open rear terrace (represented by the carrier) for bringing the kitchen (13) into the family milieu.

The last post-colonial case, *house 35* **(fig.7.9)** is another classy product of the *bride's cake* era, located in the borders of Boa Vista. Its 'string and rings' permeability graph waives discussion as does the strategic position of the dining room (9) and the complex's versatility for articulating family and visitors and segregate servants, or restrict each community to its proper place.

Inhabitants

Houses 24, 30, 32 and 36 are function-space-centred in the dining room and house 41 in the *copa.* In houses 35 and 39 one transition space is more integrating than the dining room, three transition spaces heads the RRA scale in houses 44 and 45; four in house 37 and five in houses 38 and 42. Function/transition space ratios range from 1.4 to 12 and one case (32) has no transition space. The relation between these values and average asymmetry in the complexes is, again, quite weak, with, for instance, houses 35 and 37 having a nearly equal mean RRA value (1.263 and 1.276, resp. and strikingly different ratios (12 and 2.2, resp.) .

The 'string and rings' pattern predominates (30, 32, 35, 37, 38, 41 and 45) but shows, in most cases, a reduced number of rings. Two cases are ringless, (36 and 39) and present a structure foreign to colonial models which has been identified in two E>R>C cases. Another (24) shows the function/transition string but no rings. Two others (42 and 44) present the dominant format but with an all-transition-spaces central core substituting the usual pattern of alternate function and transition dots. High mean asymmetry associates with ringlessness in two cases (24 and 39).

Hierarchical patterns of accessibility among principal day room suggest: an opposition between a family plus visitors and a servants territory in two reception-centred cases (38, 42); the demarcation of distinct territories for the three communities in houses 24, 36, 44 and 45; and a system that centres in the dining room and exclude both visitors and guests (30, 32, 35, 37, 39 and 41) from the focus of interaction.

Inhabitants and visitors

When the front door link is considered, general integration decreases in all reception-centred and E>R=C cases and increases in most E>C>R complexes (24, 30, 36 and 39). The opposition between a social- and a service-related sphere is maintained among reception-centred complexes; in some cases that have shown a wide gap between a highly integrating dining room and the other two rooms, the visitors' room is pushed closer to the locus of accessibility and segregation becomes restricted to service-related cells (30, 32 and 35); in house 24 the wide gaps among principal rooms are restructured into a family/guests' and a servants' arena. In the remaining cases the three principal functions define fairly distinct accessibility niches. The public space is more segregated than any day function in all cases.

Inhabitants extended complex

When all entrances are considered, some complexes fold into two rings through the exterior (32, 35, 36, 37 and 38); some into three (30, 39 and 44); two into four circuits (24, 42 and 45), and house 41 into five rings. Integration increases in all cases and differentiation levels fluctuate. Functional differentiation decreases in all but one case (37).

Alternative routes redefine complexes in terms of territories by knitting reception rooms closely together, by segregating guests in reception-centred cases and by reverting the E>C>R genotype into the dominant E>R>C pattern (24, 30 and 41) in others. Distinct territories seem to hold in a few cases (36, 37 and 45) and a family-centred sphere that opposes both the visitors' and the servants' arena appears to be the case in houses 32 35 and 39.

The carrier is either the first or the second most integrating space when this and day rooms are considered in all but reception-centred cases.

7.6. A foot in the past another in the air

The picture outlined above is a powerful indication that inside an envelope of pointed arches, stuccoed confectionery and mock timber framing, the products of the eclectic adventure are very much the good old colonial house in fancy dress. Or else, reedited versions of fully tried and tested patterns drawn from different types of colonial dwellings.

The old tale of three neatly severed communities, of those of family and guests occasionally joined in the same realm, and of segregated servants, has not been forgotten. However, the structure of a male/guests central domain versus a hidden-away women/children territory seems to have become history, thus proclaiming the victory of one of two coexisting modes of familial-social relationships over another, here represented by the triumph of the *casa de sítio* over the urban *sobrado.*

Not that all vestiges of colonial urban upper class ways have been wiped out. They reemerge, now and again, most often when house and public space are viewed in unison and to visitors is conceded the impression that the domestic world still centres around them, careful arrangements undertaken to guarantee an alternative path around and about their tract though, which may expand into a setting for meals according to convenience or remain ivory-towered in its outward nuclear demeanour.

The spatial logic of the urban *sobrado* may be summarised in a tendency to minimise the role of alternative outdoor routes; to centre the logic of encounters around the main reception room; to approximate the dining room, in configuration terms, to that cell and to segregate the kitchen (and ancillary spaces) as much as possible, thus defining a social sphere diametrically opposed to the service milieu. This model is not found in its fully developed nature in the post-colonial sample but is partially present in several instances specially, and most appropriately, as regards the visitors' perspective.

The urban *casa térrea* also shows its multiple face in the increased number of cases which shifts patterns according to the way the complex is approached as well as in the plans presenting the kitchen closer than the visitors' room to the focus of integration and, lastly, in the role played by the carrier and the public space in these processes. However, the narrow gaps in integration values between the kitchen and the dining room found in the *casas de porta e janela* does not appear to have been favoured among post-colonial houses which albeit showing a clear tendency to reduce the segregated character of the kitchen seem to circumscribe this service-related setting to a territory of its own by keeping it well apart, in terms of configuration measurements, from the *sala de jantar.*

The themes prevailing among colonial semi-urban residences may be found in their full expression among eclectic dwellings of which a significant number of cases subscribe to a system of encounter centred around the dining room, with alternative routes playing a crucial role on the way the complex is permeated and contributing to level hierarchy among day rooms. These are organised according to a social geography which, in cases, seems to oppose a joint community of family and visitors to that of servants and, in other cases, points towards well defined spheres for each community.

The colonial house is thus very much present, very much there, no matter the varying shapes into which space is moulded, despite the diversity of schemes for interlocking these shapes, regardless of how such schemes are realised by ingeniously manipulating walls and irrespectively of the amount of knickknacks stuck to them.

However, all is not quite settled, for lurking behind clear traces of cultural continuity some dissonance signals that the excellencies of the old model, even the one of the charming *casa de sítio* may not be beyond trial.

A fixed reading of the domestic complex seems less and less favoured, being perhaps too boring or too stiff to live with in the context of a much more multifarious society. A subtle move towards smaller, more compact spatial arrangements is in progress not implying in less structuring nor in less opposition between the private thresholds of the home and the public world of the street. Outdoor patches, shaped into gardens, patios, yards and a multiplicity of terraces, embedded firmly within the private boundary, knit the whole system together, often as the very locus for inhabitants' society.

Cues of a newly introduced opposition between familial society and individual intimacy underlie the apparent loss in prestige of compulsory and even of optional 'thoroughfare' bedrooms, which become increasingly attached to a circulation network.

Remote kitchens no longer seem convenient even for wealthier households. They, and their sect of ancillary spaces may, and often must, look almost unreachable in the presence of outsiders but are less and less so from an inhabitants' perspective although not the faintest trace of these settings being turned into the focus of spatial integration is ever let out.

The general panorama emerging from the study of post-colonial homes tells thus a story of cultural continuity but not one of cultural inertness. On the contrary. Findings suggest that a slow but steady process of change infiltrates between and betwixt traditional patterns of encounter and avoidance crystallised in spatial configuration. The strong profile of a family-centred, community-compartmentalised and outdoor-permeated domestic network, already delineated within colonial semi-rural dwellings has not been challenged but a number of more or less insinuating novelties point towards an evolutionary undercurrent at action. The increasing versatility in the ways of articulating territories, a progressive ingenuity in resorting to outdoor spaces for achieving that versatility, a crescent need to restructure the family zone into day/night, society/intimacy poles and, underneath all this, a tendency for achieving these aims by establishing a more defined network of transition spaces are symptoms of that process.

The old model, or else, the lighter side of the old model is overwhelmingly present but something is definitely in the air and this looks very much like a sketch of patterns to be, like shadows of a new model not yet fully outlined.

Many stones have been left unturned. A probing on the obviously paramount role of ground floor terraces in the flowing and distribution of functions is only one of the most conspicuous absences. Another is the relationship of the minimal living to outbuildings, specially as regards servants' accommodation.

Another, still, is a thorough insight on the way master bedrooms relate to the complex, in particular, as concerns the part they play in knitting social and familial territories together not to mention their apparently powerful controlling character which appears to have been inherited from colonial times, in many eclectic complexes. The relevance of the *copa* as a crucial link between family and service spheres has not even been touched upon although this space has already deserved some interesting comments in the literature of Brazilian houses[259] and its migration up the integration scale from colonial to post-colonial times is all too obvious a symptom of its increasing importance. Then there are bathrooms and toilet rooms, entirely missing from colonial houses and increasingly multiplied in post-colonial ones. The list is endless and the investigation of overlooked issues could well fill another thesis, or many.

However, it is believed that the meagre cast of aspects studied in this particular piece of research, essentially limited to the exploration of three spaces — *sala de visita*, *sala de jantar* and *cozinha* — has been sufficient to eradicate any notion of cultural rupture, so frequently wielded by the advocates of the extinction of all things eclectic, and has contributed to further knowledge on post-colonial houses at larger, besides setting the premises for the investigation of possible traces of British influence over domestic models in Recife, that follows.

[259] See Lemos, C. Cozinhas, etc., Perspectiva, São Paulo, 1978.

CHAPTER 8

CHANGE (AND CONTINUITY) IN DOMESTIC SPACE DESIGN

With the purpose of verifying an alleged foreign influence over domestic buildings of Recife this investigation departed from an attempt to identify what sort of homes the supposed agents of transformation — British residents in the town — had left behind. It then, sought to unveil the spatial nature of local dwellings as they were built before the arrival of those residents, the colonial house, and during or after their stay, the post-colonial or eclectic house. This chapter compares the three samples and assesses the effect that the British presence in Recife might have had in reshaping colonial spatial models.

8.1. **Back to the British**

The image of late nineteenth and early twentieth century British domestic complexes portrayed in the literature, is that of a highly segmented circulation network which link dead-end rooms. Such structure configures a *transition-space-centred* model as conceptualised by Hillier, Hanson and Graham; a chain of halls, stairways, landings, passages and lobbies leading to *cage* - rooms, as seen by H. Muthesius; the *corridor-plan* with *terminal* rooms attached to it, as referred by Evans. Its ultimate aim is often referred as being that of keeping people, particularly those of a different social class, apart.

Chapter 3 probed a sample of five hundred cases, at a global level, and chapter 4 scrutinised twenty-five representative plans, in detail, to check whether this notion summarises, in fact, the essence of nineteenth and early twentieth century British homes. It does not.

It has been demonstrated that although unquestionably transition-space-centred and predominantly dead-end roomed, the observed spatial complexes defined quite distinct models and that these were undergoing continuous restructure through a process that evolved differently in dwellings designed for diverse segments of society.

Evans [260] states that at Coleshill (by Sir R. Pratt, c. 1660), the ... *most through-going application of* ... the corridor plan it looks ... *as if from the architect's point of view all the occupants of a house, whatever their social standing, had become ... a potential source of irritation to each other.* The plan is thus laid out to provide .. *a careful containment and isolation of individual compartments in which to preserve the self from others....* Later on, with Robert Kerr, desired levels of interface were achieved by... *a general strategy of compartmentalisation on the one hand, coupled with universal accessibility on the other.* [261]

It is this *strategy of compartmentalisation* that constitutes, it is strongly believed, *the* essential character of the British home. Some of its fundamental manoeuvres, that appear to have been developed far beyond Kerr's design guidelines, have been unveiled by the present piece of research. At its heart lie a complex circulation network and a series of schemes for attaching key spaces to it so that everybody will be safely isolated, or some united and others segregated or, still, everyone brought happily together.

The three configuration facets mentioned above reappeared in dwellings of all status throughout the studied period. However, findings revealed a consistent evolutionary tendency from the first, to the second and to the third model underlying the sample as a whole but unfolding at different paces in homes of diverse social groups.

In a synchronic perspective, middle middle class complexes were found to be significantly more integrated than upper and, specially, lower middle class ones[262] but observations indicated this to be mainly a consequence of different patterns of evolution for the three categories. A preference for more integrating systems was detected earlier on among middling complexes and later among upper middle class ones, whereas at the bottom of the social pyramid, as a whole, no significant alteration in terms of accessibility defines a turning point. Besides, whereas among middling complexes this pulling up of spaces together did not affect the differentiation invested in the system, that is,

[260] Evans, R., op.cit.p.267.
[261] Idem, pp. 273-274.
[262] See chapter 3, p.104.

many spaces carried on being a lot less accessible than others, in larger complexes the increase in accessibility was more thoroughly spread in the spatial structure, with pockets of segregation becoming fewer [263]

Furthermore, the stress authors lay on the size of the circulation network as a crucial factor for achieving desired levels of isolation appears now misplaced. It emerged that a similar proportion of transition segments could generate quite distinct patterns of accessibility, and vice-versa,[264] and that more or less accessibility in the system related with the use designed for most integrated rooms. Complexes in which the main reception room is more accessible than the dining room or the kitchen tend to be more segregating than dining-centred systems which tend to be more segregating than cooking-centred systems.[265]

Each model prevails among the dwellings of distinct social groups and may fall or increase in frequency in a certain social cluster across time, according to a consistent pattern. Complexes centred around the space used for taking meals dominate in upper middle class houses throughout the time span; cooking-centred ones are more frequent among middling homes and become predominant in this category after the war; systems in which the main reception room is the most integrated day function can be found in all social groups — albeit not predominating in any — but tend to be less and less favoured. [266]

Main reception rooms become more segregated with time less as a consequence of their relative position in the system, which alters little, and more due to configuration alterations affecting dining rooms and kitchens.[267] As these functions move around their base transition network and, specially, as kitchens get closer to the movement core, the whole system is pulled together. Whereas in the majority of earlier cases the setting used for cooking is the most segregated day function, time (and the war) will contrive to drag this space into the hub of interaction, so that it either takes over the main reception setting in dining-centred cases, or becomes the best connected day room. [268]

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[263] Idem, pp.105-107.

[264] Idem, pp. 108, 117, 129, 130 and 134.

[265] Idem, pp.112.

[266] Idem, p. 114 and 115.

[267] Idem, pp.117 and 118.

[268] Idem, p. 120.

This move underpins a broader tendency underlying the spatial development of British domestic structures and signals the displacement of a social-centred logic for a family-centred one. Again, this process does not mature in synchronised rhythm for all social groups. It starts earlier among upper middle class homes, and is followed by middle middle and lower middle class ones.[269]

Upper and middle middle class complexes have shown a strong tendency to configure a pattern in which an equal level of accessibility is granted to the two chief reception rooms that oppose the kitchen as integrating and segregating poles among day functions. This trend is given up in the upper sector already in the last decades of the century but will remain powerful among middling houses until the war years. But whereas in wealthier homes the double-reception-centred model was substituted by a dining-room-centred one, among middling complexes it was replaced by a kitchen-centred structure.

Among smaller dwellings a version of the double-reception-centred pattern is manifested mainly in the complexes where the one space used for both receiving guests and eating meals is more integrating than the room where cooking goes on. The trend, which had never prevailed in the category, gradually loses relevance and almost disappears after 1914.[270] A model centred in the space where food is both prepared and consumed dominates in this group throughout the study period and gets stronger with time. With the transference of cooking to the scullery, many such dwellings will enjoy a separate space for each basic day activity. In these, as in the upper homes, the space used for meals will be the focus of functional integration.

The case-by-case examination of a representative subsample confirmed the major trends described above[271]. The transition-centred character of British domestic complexes was reinforced insofar as in the overwhelmingly majority of cases a series of transition segments headed the integration scale. So was the powerful role played by the way rooms connect to the circulation network to integrate or dissociate activities, and the various manoeuvres into which this strategy unfolds for establishing household territories and drag rooms into or

[269] Idem, pp. 124-128.
[270] Ibidem.
[271] Chapter 4, (passim).

push them away from the focus of domestic interaction.

Integration was found to be predominantly a family-plus-guests or a family prerogative with segregation chiefly reserved for spaces associated with storage, dirty work, personal hygiene and servants. The analysis of individual cases also illuminated aspects of how the shift from a social-centred to a private-centred system was realised in space and highlighted the paramount role played by dining rooms (or dining-living rooms) and kitchens in that process.

The assessment of how the complex of interior spaces related to the public space via the front door (the visitors' route) and to the exterior (carrier space) via any outdoor entrance (inhabitants' choice of routes) revealed that the anticipation of visitors may contribute to redefine the complex in terms of social and service spheres, by pushing the latter deeper into segregation, whereas alternative routes are either confined to a strict service-related pathway or may double or treble into social circuits. These contribute to unite family and guests into a social-integrated territory which opposes the service arena and its occupants by increasing the integration gap between the rooms associated with either 'worlds'.

It is believed that the shift towards a much more integrated network, the reduction in transitional segmentation, the gradual transference from a social-centred to a private-centred system and the move of the kitchen into the limelight of domestic integration are all part of the same process which translates the reduction or near disappearance of domestic servants in middle class dwellings after the war.[272] Housewives moved into the kitchen and demanded increasing accessibility for their headquarters. Again, the ever-volatile, ever-resourceful circulation network, and a skillful strategy behind its links, did the trick.[273]

Postwar British homes did not cease to be an asymmetric/nondistributed, transition-centred model. However, the spatial logic behind these houses was well another from that prevailing among prewar homes. Thus, far from being an instrument for keeping everybody and everything apart, as references have

[272] Idem, pp.188-190.
[273] Idem, pp.191-192.

led to believe, the British complex circulation network folds and unfolds around itself to segregate, approximate and unite people and their actions, as it becomes more or less desirable.

8.2. **Before the British**

Neither the *corridor plan* nor the *matrix of connected rooms* fully translate the spatial configuration of colonial houses. Many are function-centred, insofar as their most integrated space is the main reception room or the dining room; others are transition-centred, with the hub of movement converging into a corridor. In all, a circulation network consisting basically of one corridor in each floor and one staircase is greatly added by the presence of multiple doors in certain rooms which operate as thoroughfares and offer shortcuts or alternative indoor and outdoor pathways, through the system.

The general assumption, repeatedly echoed, places colonial houses as a seen-one-seen-them-all layout with a front room and a back room, linked by a corridor that is flanked in one or both sides by a string of bedrooms. Variations are said to be restricted to: whether this layout is layered over a ground floor used for storing things and male servants (as in the urban *sobrados*); is dragged down to ground level (as in the *casas térreas*), and; whether service-related spaces are located in the attic storey which tops the main floors (as, again, in the urban *sobrado*) or are removed to ancillary cells in the manner of semi-rural (*casas de sítio*) or rural dwellings. This is only partly true.

The investigation has revealed that two powerful trends underlie the spatial configuration of colonial houses whether they conform to the front-room-back-room-corridor-bedrooms layout (and most plans do) or not. The first is male-centred and (guest-centred), reception-integrated, rigidly structured and refractive to the exterior by whatever routes the complex is approached. Front door and alternative entrances, likewise, little affect general or functional accessibility. The second is family-centred in the dining room and suffers readjustments in integration (global and functional) when the complex is approached by alternative routes, these playing a powerful role for increasing accessibility and reducing the differentiation gaps among day rooms but not for actually changing the pattern of hierarchy among them.[274] In both, kitchens are more segregated than the main reception or the dining room although tending to become less so when alternative routes are introduced in the second model. Reception-centred complexes associate chiefly with *urban sobrados* and dining-centred ones with *casas de sítio*.

A third trend, identified among colonial *casas térreas* , suggests a compromise between those two. Like most semi-rural dwellings, these are dining-room-centred complexes in which alternative routes contribute to reduce functional differentiation and increase integration but here the main reception room may be more segregated than the kitchen. However, when the exterior is introduced, shiftings in the genotype often occur with the main reception room being pulled closer to or into the focus of integration, in the manner of the model prevailing in urban *sobrados.*[275]

Whereas in the first model a combination of a few transition spaces and 'thoroughfare' rooms configures an asymmetric/distributed network which remains as such regardless of how it is approached, in the second model, and in its variation (the third model), a similar structure is often overwhelmed by the powerful property of the carrier for knitting the system together and may break into a flat ringy structure reversing the very configuration type from an asymmetric/distributed to a symmetric/distributed one.

8.3. After the British

As happens with colonial houses some post-colonial complexes are function-centred, the most integrated space being nearly always the dining room in these cases, while others are transition-centred. Contrarily to the role played by the central corridor in colonial houses, most integrated transition spaces do not necessarily constitute the distributing point, being often a staircase, landing or passage connecting a few rooms. However, instances of an embryonic circulation core are believed to signal the earlier stages of development of an independent transition network. Again multiple doors in function spaces offer alternative indoor and outdoor routes, through the complex.

[274] Chapter 6, pp.252-256 and passim.

[275] Idem, pp.256 and passim

The front-room-corridor-back-room has become rare and the number of storeys no longer offers a means for the identification of social status. The configuration model immutable and indifferent to the exterior has nearly disappeared, shiftings in genotype inequalities occur in houses of all sizes and social strata and instances of asymmetric/nondistributed networks are found.

Among genotypical arrangements of main day functions, single- or double-reception-centred complexes are rare and thoroughfare bedrooms have become fewer. Although dining rooms are overwhelmingly the focus of functional integration and kitchens usually that of segregation, in a number of cases, wealthy and modest alike, kitchens and main reception rooms swap places in the RRA scale.[276]

Such dissonances between colonial and post-colonial complexes could perhaps have been perceived as signs of a cultural rupture with traditional codes thus indicating that the reputation of eclectic houses as pastiches of foreign models might have had some grounds. Nothing could have been more mistaken.

8.4. <u>A comparative view</u>

If no word had been written so far, the data displayed in **tables 8** through **8.3** and **figures 8** through **8.6** would perhaps be enough to demonstrate that the mode of development of colonial into post-colonial houses was one of cultural continuity and that the configuration profile of prewar middle class British houses is quite diverse from both.

Table 8 shows the average mean RRA values of prewar British houses (1.536) and that of the selected subsample (1.468) for the minimal living complex. The fact that these are significantly more integrated (p.=0.0001), is to be expected given the purposeful bias towards middle middle class plans in the selected sample. The same data for colonial and post-colonial houses (1.324 and 1.308, respectively) are displayed. If these had altered in the direction of the British model their complexes should be less integrating than

[276] Chapter 7, (passim).

their colonial predecessors. They are not. Variance between the values for colonial and post-colonial clusters is neglectable (one-group, two-tail T-test p.= 0.7648).

When the carrier is added, selected British houses become more integrated (av. mean RRA =1.385) and so do colonial (av. mean RRA =1.095) and eclectic houses (av. mean RRA =1.08). However, line charts in the same frame (**fig.8a**) for the three samples show that the carrier increases mean integration much more radically in Brazilian houses. The difference in average mean integration between the minimal living complex without and with carrier can also be visualised in **figure 8b**. The gap is much narrower in British complexes as compared to colonial and eclectic ones, that show a very similar picture.

Nearly nothing happens when the public space is added to British minimal living complexes. The paired T-test comparing their average mean integration for interior spaces with (1.467) and without the front door (1.468) link shows a probability of 0.8825. The reduction in average integration among colonial houses is not significant either (p. = 0.304). Post-colonial complexes become significantly (p. = 0.0007) more segregated when the public space is considered. This stronger effect caused by the front door link to the street in eclectic houses may also be viewed in the charts in **figures 8a** and **8b**.

Table 8.1 shows the average BDF for prewar British cases (0.831) as a whole and for the subsample (0.812) which is significantly more differentiated than the full sample as might be expected for middling complexes. It also shows the average BDF values for colonial and eclectic houses (0.791 and 0.778, respectively). Their variance is neglectable (p.= 0.488), indicating that post-war houses are at least as differentiated as colonial ones, and tend towards even more differentiation.

When the carrier is added, British systems become significantly less differentiated in general terms (0.835 av. BDF, p.= 0.0002). Variation in global differentiation between minimal living and minimal living plus carrier complexes are, paired T-test indicates, also significant for colonial (0.828 av.BDF, p.= 0.0308) houses but *not* significant for eclectic ones (0.797 av.BDF, p.= 0.2766). The average differentiation between the minimal living complexes and these structures reworked to include the public space is irrelevant for all populations. Charts in **figures 8.1a** and **8.1b** illustrate variations in average BDF values between the minimal living and reworked complexes. The patterns generated by colonial and eclectic houses are similar and quite distinct from the one generated by British houses.

Figure 8.2 shows that mean integration and differentiation correlate more strongly in British houses than in colonial houses and that, in British complexes, the links between the interior spatial system and the exterior (via the front door or all entrances) affect this correlation very little, whereas dots representing colonial and eclectic houses migrate conspicuously to the integrated half of the graph when the carrier is added. These samples also show a strong correlation between integration and differentiation when the public space is added and that this correlation is weak in colonial minimal living complexes with or without carrier. The strong tendency for more differentiation to follow highly integrated structures, regardless of how they are approached, in eclectic houses points towards British domestic models. That tendency is, however, stronger than in British systems and appears to follow a pattern similar to that of colonial complexes linked to the public space a fact that suggests this to be perhaps an inner aspect of the housing development from semi-rural to suburban and urban models as it coincides with the pattern identified among colonial houses when visitors are anticipated.

Table 8.2 displays the ratio between function and transition spaces for all prewar British cases, its subsample, colonial and eclectic houses. The proportion of transition to function spaces is far less in colonial than in British plans. Do houses in Recife become more transition-segmented after the British? No, they do not. They become even less so. **Figure 8.3** shows the correlation between transition-fragmentation and general segregation to be stronger in British plans, less so in colonial houses and even less in post-colonial ones.

Looking back into the permeability graphs displayed in **figures 6.13/14** and **7.10/11** it can be seen that the 'string-and-rings' model dominates among colonial and post colonial examples alike when complexes are rooted from the public space. Function and transition spaces mingle in rings and alternate in the central string. When graphs are reworked through alternative routes networks are pulled dramatically down towards the carrier that roots a mesh of rings.

Rings are scarce among British plans (**figure 4.14/1 5**) which conserve their upright backbone-and-branch pattern with transition and function spaces neatly positioned, the former on the backbone, the latter on the branches. Little changes occur when the carrier is in focus, with tree trunks emerging in most cases from one single shallow ring or, in some cases, from a much thinner web invariably involving a service and one or two social circuits.

The variation in RRA value among the settings designed for receiving, eating and cooking, in a frozen frame for the three samples, is shown in **figure 8.4a**. There is far less variation among main functions in British houses and the integration range of each function is very approximate, although that of kitchens, as repeatedly stated, is greater. The situation is well another among colonial and eclectic houses, with dining rooms conspicuously more integrated, kitchens very segregated and a wider range for each function.

When the carrier is added nothing appears to change in British houses whereas the line linking each function in colonial and eclectic houses becomes visibly less broken and figures are pulled down towards the bottom of the graphs. This emphasises the strong property of the carrier for levelling functional hierarchy in houses of Recife.

No visible alteration can be perceived in British houses when the street is linked to the minimal living. In colonial and eclectic houses, less variation occurs with dining rooms. These and the visitors' rooms approximate the integrating bottom of the graph and the angle of the line linking them together is widened whereas that of the line connecting dining rooms and kitchens becomes more acute. This illustrates the property of the public space link for uniting dining and visitors' room into a family/social integrated sphere which opposes the kitchen. **Figure 8.4b** displays the same data with the carrier and the public space shown. The similarities between the graphs representing colonial and post-colonial plans and their dissimilarities with that generated by the British subsample are unnecessary to discuss.

Functional differentiation among the three principal day functions is shown in **table 8.3**. British houses are far less differentiated (0.983 av. BDF) than colonial ones (0.888). Post-colonial plans do become less differentiated functionally but whereas the variation in average differentiation between the British and the colonial samples is significant (p.= 0.0001), that between colonial and eclectic houses is not (p. = 0.4543).

With the carrier added to the minimal living complex a slight decrease in differentiation occurs among British houses. This is however irrelevant (p. = 0.1591). When alternative routes are added to colonial houses, the reduction in inequality gaps among main day functions is strong (p. = 0.0005). This tendency is weakened among eclectic houses but remains significant (p. = 0.0074).

The similarities in the pattern of functional differentiation between the colonial and the eclectic sample and how it varies when the exterior is considered speak for themselves in **figures 8.5a** and **8.5b** that displays mean values for the minimal living with carrier and without carrier in the three samples.

The importance of alternative routes for redefining the way the complex is read in Brazilian houses is illustrated in **figure 8.6.** British houses present more diversity in terms of inequality genotypes but their frequency tend to be maintained. A lot of restructuring occurs in Brazilian houses. The carrier contributes to level the accessibility of the two reception rooms among colonial (E>R>C are turned into E=R>C genotypes) and among eclectic plans the proportion of reception-centred complexes increases (R>E>C) at the expense of reception-segregated ones (E>C>R).

The link to the public space also produces radical readjustments in genotypical trends within both colonial and eclectic complexes: post-colonial reception-segregated complexes tend to disappear whereas dining-integrated/kitchen-segregated ones increase. These rearrangements highlight a tendency for more structuring and for less accessibility granted to kitchens when visitors are considered. Inequality between reception rooms (E=R>C) virtually disappear in colonial and post-colonial houses, the same applying to an equal accessibility level for kitchens and main reception rooms (E>R=C) in the latter group. The only alteration affecting British houses when the front door link is added is an increase in double-centred-reception plans, an opposite trend to both Brazilian types, thus.

More common grounds between colonial and eclectic homes can certainly be added to the list above. However, it is believed that what was said has been sufficient to demonstrate the point: colonial and post-colonial domestic spatial complexes are clear examples of the permanence of broad spatial patterns underneath the guise of a novel-looking built shape.

Yet, findings have shown a number of discrepancies which, subtle but consistently, insinuate that the colonial model, or models, was slowly being undermined in some of its foundations. Most of these changes, however, drift in an opposite direction to the spatial logic of British homes. Some instances are a tendency for less transitional segmentation, an average increase in integration when the front door link is considered and a growing tendency for multifarious readings of the domestic complex according to the movements of inhabitants and the anticipation of incomers. None of these trends takes the spatial configuration of post-colonial dwellings anywhere nearer that of British houses.

On the other hand, a move towards smaller, more compact spatial arrangements, was verified in British as well as in Brazilian houses, these showing a tendency to shift the focus of accessibility from a visitors-centred to a family-centred configuration, a journey which bears affinity with the move from a family-plus-guests to a family-focused model in British homes. However, the adoption of compacter, less asymmetric complexes is only fully outlined in postwar Britain, when the English presence in Recife was only a shadow of its previous self and a configuration model centred in the dining room was already strongly present in semi-rural colonial houses long before foreign residents made their way into them.

The lifting of the kitchen from a remote spot to a fairly reachable place was seen to be more frequent among post-colonial homes. This does make one think of the less segregated position of the British kitchen, even before the war. The *sala de jantar*-centred/*sala de visita*-segregated (E>C>R) model increases from 19% to 24%.and spreads from a population restricted to small *casas térreas* to post-colonial dwellings of varying sizes and status.[277] But in Brazilian homes the increase in levels of accessibility for kitchens was never enough to actually bring these spaces into the limelight of spatial integration and whenever the anticipation of visitors was there, kitchens were thrown back into isolation. The genotype reverts into the kitchen-segregated model in half of colonial and in two-thirds of post-colonial houses. Kitchens are the most integrated day room in a significant share of British prewar homes and although the configuration distance between the main service and the main reception room may be narrowed when the public space is considered in reception-segregated British homes this rearrangement is not strong enough, in the majority of cases, to actually alter the genotype.

What appears to be a growing need to oppose familial society and individual intimacy underlying the reduction of 'thoroughfare' bedrooms among post-colonial houses, together with instances of a more elaborate circulation network may point towards the spatial logic in British homes.[278] This insinuation of an independent transition core is even more suggestive because it appears in later and larger complexes, five of which stylistically influenced by Victorian suburban houses (28, 39, 40, 42, and 44), two neo-colonial (43 and 46) and one being a late version of the stuccoed flair. In all of these cases, three or more transition spaces follows one another in the main access trunk and in all but one case, some of these spaces lead the RRA scale. However, in these complexes, at least one main day room is a passage to another function and in houses 42 and 44 the compromise between the old and what appears to be a new model reaches state-of-the-art level with every function (bedrooms included) linking to a transition segment and yet connecting directly to another room.

British and Brazilian layouts have revealed multiple schemes for keeping unwanted people and their doings away and approximate others. The strategic positioning of doorways following rules of adjacency for key activities in colonial and, particularly, in post-colonial complexes met those needs as did

[277] Chapter 7, pp.287-290.

[278] Ibidem.

the rules underlying the ways rooms are moved around their base circulation chain in British homes. Both the 'string and rings' structure of Brazilian houses and the 'backbone' circulation circuit of British homes appear to have succeeded in achieving and regulating desired levels of encounter and avoidance.

Yet, global and partial configuration themes considered, it appears that whereas the ultimate aim underlying the network of British homes was to fine tune scaled levels of privacy, that governing the spatial nexus of some colonial and most post-colonial houses in Recife had to do with the regulation of an explicit stimulus for interaction, as laid out by interconnecting rooms and their multiple doorways.

8.5. <u>On myths and findings</u>

The matrix of connected rooms is appropriate, ... Evans advocates[279] ... *to a type of society that feeds on carnality, that recognises the body as the person and in which gregariousness is habitual. ... Such was the typical arrangement of household space in Europe until it was challenged in the seventeenth century and finally displaced in the nineteenth by the corridor plan, which is appropriate to a society that finds carnality distasteful ... and in which privacy is habitual.*

There is no intention here of treading the slippery terrain of symbolic generalisation and assume that the nexus beneath the spatial configuration of pre-modernist houses in Recife associates with a taste for carnality. Yet, it takes a foreigner little time to realise that *gregariousness* is a daily taken-for-granted in the Brazilian society today, as appears to have happened in the last century, with Vauthier, Koster, and other newly-arrived, as soon as they found themselves away from the artificially formalised atmosphere of urban colonial residences.

The history of domestic architecture in Pernambuco starts with a few villages

[279]Evans, op.cit.p.273.

and hamlets scattered along the coast and with rural buildings punctuating huge tracts of land. The communities which developed in these estates were deeply unbalanced in terms of authority and personal rights, being usually formed by an all-powerful landlord, his direct family, a number of close and/or distant relatives (mostly dispossessed) and a mob of slaves. The rules governing relations within these compounds were mostly confined to their boundaries and are said to have varied greatly according to local needs and resources, but specially, according to the means and designs of each almighty *senhor de engenho.* Diversity of models among sugar farm houses was what primarily struck Vauthier[280] who considered *casas grandes* to be the type of colonial dwellings which mostly betrayed signs of individual taste. Diversity of models was also the main conclusion drawn from DaSilva's study of *casas grandes* in Pernambuco[281] in which the author refutes Freyre's notion of this type of building as a 'classic theme' in Brazilian domestic architecture based on the fact that *casas grandes* varied widely according to resources and preferences of landlords.

In moving from rural isolation into a much more heterogeneous and yet half foreign urban world the class of landowners elaborated strict norms of encounter and avoidance which underlie the references on 'formal ways' by foreign visitors and were often perceived as symptoms of a lacking social refinement. These rules, crucial for the maintenance and reproduction of the patriarchal slavist social order, are here believed to constitute the nexus at the root of the male-centred, generally segregating, rigidly hierarchized and exterior-retracted structure identified in the urban *sobrado.*

A temporary relief for that strict pattern of conduct was, however, conceded within the much safer and socially homogenised sphere of holiday resorts, in which residence during the summer season was far beyond the means of the poor population. Foreign residents, too, seem to have found relief from filthy streets, uncivilised people and general backwardness in these islands of semi-rural atmosphere where *gregariousness*, friendliness and general gaiety blossomed. Thus well before Brazilian ports were open to a continuous flow of foreign people and their ideas, the *casa de sítio* had been a setting where the

[280] Vauthier, in Freyre, op.cit.p.867
[281] DaSilva, G.op.cit. p.517.

straitjacket of a single code of behaviour was partially loosened, and individuality was again allowed to reenter the scene. This led to freer and more spontaneous forms of social contact, most of which, it is trusted, had deep roots in rural and semi-rural communities.

Post-colonial houses have shown strong affinities with this model as well as signs of a compromise between this and the structure predominating in urban upper class homes. An all-controlling, male-reserved reception room had become past and the former *gynaeceum* became the very focus of interaction neither retaining its traditional gender connotations. As appears to have occurred in holiday resorts, *salas de visita* became just a visitors' rooms where callers were received by inhabitants, irrespective of their sexes, and *salas de jantar* the common arena of daily living as well as of entertaining to a meal. The orchards and alpendres of the *casas de sítio* and their attribute of bringing people together unfolded into rosy gardens and multiple terraces and strengthened its former role. Contrarily to semi-rural houses, this context was restructured when the street was considered and visitors were often placed in the centre of the domestic world. Outdoor spaces, too, had the power of restructuring the system, showing a duplicity of attribute, insofar as they contrived to bring visitors into the focus of accessibility but guaranteed an alternative route around their setting.

The modest colonial urban *casa térrea* also paid its tribute, not only as concerns the rearrangement of accessibility according to diverse approaches but also in a less secluded position of the kitchen. This was, however, a reading restricted to internal fruition for kitchens retreated into isolation whenever the presence of outsiders was envisaged.

The male centred domestic cosmos was challenged and forgotten and the visitors' nuclear position only partly conceded but servants saw little alteration from what their parents and grandparents had experienced. Their rooms remained as distant as spatial laws permitted, much in the way of colonial slaves quarters, and kitchens were not allowed into the hub of movement, even on an inhabitants' only perspective. This comes as no surprise as Brazilian middle class housewives do not (to this day) occupy kitchens on a daily basis. As advocated by Freyre, women may have had their turning point against patriarchalism in the late nineteenth century. Servants still await theirs.

Freyre has viewed the *urban sobrado* and the *casa de sítio* as settings where the women versus patriarch struggle was staged and won. As many of his critics point out, myths, prejudices, intuitions and facts fuse in Freyre's encyclopaedic output making it a challenge for researchers to sort them out. He seems to have been quite mistaken about the emancipating nature of the *sobrado* but right enough as concerns that of their semi-urban counterparts although, again, not about the origins of its move from holiday to permanent residences.

The layouts of houses in Olinda, one of them at least, built centuries before the influx of foreigners, presented aspects coherent with the spatial configuration of the *casas de sítio* and their inheritance was seen to be strongly imprinted in post-colonial houses, facts that betray the long-term validity of the rules underlying that structure and suggest the model to be highly compatible with the needs and aspirations of the society that created it.

It is thus believed, that foreigners in general and, in particular the British, contributed to turn semi-rural buildings into permanent residences not for being looked up as superior creatures (which, incidentally, they appear to have been), as hinted by Freyre, but by having the means to bring urban facilities into prized environs of temporary relaxation and closer to those buildings which far better than their urban counterparts suited the nature of its occupants. They did so not for representing role models for the natives but by running companies that held whatever was available in terms of urban infrastructure and by exercising immense economical and political power.

It is just possible that the novelties manifested in some post-colonial houses, as for instance, the increasing number of terminal bedrooms, are traces left by the British in the bargain. But these are too meagre to characterise cultural change or indeed to counteract the mass of evidences pointing towards a pattern of continuity linking colonial spatial structures and their successors.

The alterations described above seem more appropriately regarded as symptoms of newly developed needs in a society experiencing various forms of contact with a, until recently, remote outer world. Such needs whose origin could be attributed to all sorts of external influences would perhaps have been brought about British presence or otherwise. Or, the combination of an open plan and terminal bedrooms, could have been precocious manifestations of the *International Style* at action. This is, however, another story.

AFTERWORD

Looking backwards it feels that the journey was too tortuous, too painful and too long for its destination. If the essential formula of a thesis translates into a hypothesis + observations = results formula it may be argued that this is a somewhat upside down thesis, since it departed with the purpose of not adhering solely to its central hypothesis, proceeded through a never-ending sequence of observations, scattered numerous questions on the way, and ended up with a few theories which may be viewed as hypothetical postulations.

However, albeit perhaps unduly laborious, the present work is believed to have achieved its purposes and to have been worth every bit of the effort generously lavished over it throughout the past four years. To explore the possibilities of space syntax for reconstructing building structures and therefore for disinterring socio-cultural patterns of behaviour from houses no longer inhabited by those for whom they were designed, or from mere drawings, has all along been regarded as far more important than the verification of an operational hypothesis, if only in terms of the unlimited perspectives it opens up for future research.

This was added by the desire to investigate a subject entirely untouched by previous research — the spatial structures of post-colonial houses in Recife — coupled with a great curiosity about aspects of the so-called British lifestyle, much referred to and little studied by Brazilian authors. The disentangling of cultural aspects pertaining to either society was therefore rather a consequence of those aims.

It is believed that the hypothesis forwarded in the first chapter has been fully confirmed: just as the repertoire of eclectic trends that contributed to reshape

Brazilian townscapes translates essentially not a morphological revolution but the consequence of successive additions to traditional models, the spatial structures of post-colonial dwellings, although they sometimes define novel layouts, were seen to result from the combination and modification of existing patterns plus the introduction of a few novelties. The final product, it is believed, constitute not a rupture with previous models but the development of these models to meet the needs of a mutating cast of socio-cultural relations within the domestic environment.

This conclusion does not sound too revealing and neither does the demonstration that in both Brazilian and British homes space is organised under well-defined rules for articulating distinct communities of home users but that in houses of Recife this is achieved by a clever manipulation of a few transition spaces added by schemes of spatial adjacency and multiple doors whereas in British houses those aims are resolved through skillful manoeuvres for attaching rooms to a complex circulation network. However, the disclosure of distinct facets behind those processes allowed for glimpses of the ways in which social class, individual needs and time conventions entered them. Such findings constituted valuable tokens collected on the trek, since they sometimes revealed aspects entirely unsuspected and opened up possible lines for further research. In this sense, the many questions left behind are perhaps more inspiring than the actual conclusions.

The wish to dive into the unknown and to explore the unexpected was thus, the reason behind a stubborn resistance to follow an objective line of thought towards the testing of a hypothesis; its consequence, of course, a high cost in terms of observations, time consumption and endurance.

One can only apologise with all one's heart to the readers who will rightly wonder about the length of the work, the bulk of the data and, above all, the tediousness of some of its sections and hope that, despite all this, some of the excitements experienced by the researcher, on the way, may be shared and the journey considered worth taking.

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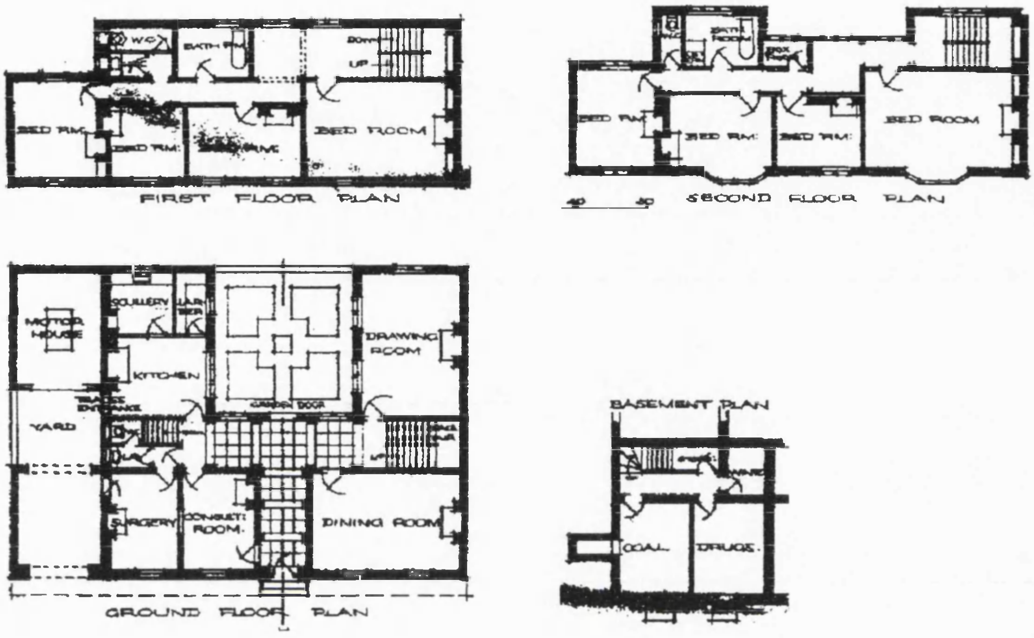
FIGURES AND TABLES

CHAPTER 1

Figure 1. Example of procedure applied to all plans

a) Plan of *house 201* as scanned from photocopied material



b) Plan broken into a minimal living complex of spaces

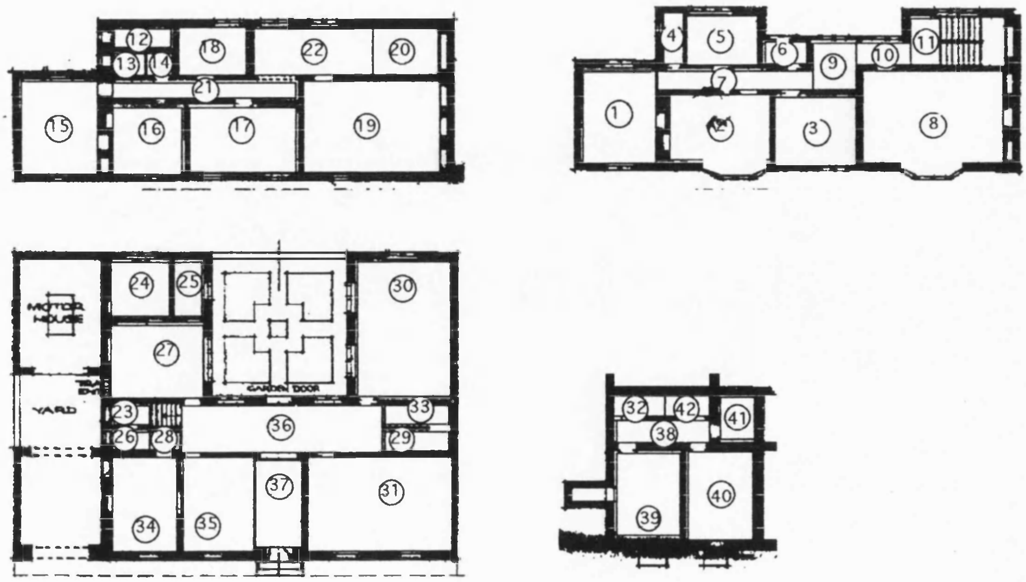


Table 1. British Sample. Basic General Data

no. of plan	sub-sample	journal	data of publication: year	month	day	type of ground occup.	date of design/ constr.	no. of spaces: all	funct.	trans.	Fntc./ trans. ratio	no. of storeys	number of main day living rooms as labelled in the plans: drawing	lounge	parlour	living	liv/sit hall	sitting	morn./ breakf.	boudoir	library/ music	study/ den	smok./ billiard	dining	kitchen	scullery /wash	servery/ sv.lobby	srvts. hall/room	pantry	availability and distribution of functions into rooms: no. of rooms used for: Rec.	Serv.	Beds.	(see key)	family of room labels (see table 2.8)
1	•	TB	1843	Nov	25	semi-det.	•	14	6	6	1	2	•	•	1	•	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	3	R.E/C.W	P.K
2	•	TB	1852	Jul	24	terraced	•	10	5	3	1.7	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
3	•	TB	1852	Jul	24	semi-det.	•	12	5	4	1.2	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
4	•	BN	1859	Sep	2	detached	•	34	15	14	1.1	2	1	•	•	•	•	•	1	•	•	•	•	1	1	1	•	1	•	3	3	6	R.E.C.W.A	Dr.Di.K
5	•	BN	1859	Oct	7	detached	•	36	15	12	1.2	3	1	•	•	•	•	•	•	•	1	•	•	1	1	1	•	•	•	3	2	8	R.E.C.W.A	Dr.Di.K
6	•	BN	1860	Jan	6	detached	•	23	10	10	1	3	1	•	•	•	•	•	•	•	1	•	•	1	1	1	•	•	•	3	2	3	R.E.C.W.A	Dr.Di.K
7	•	BN	1865	Dec	29	semi-det.	•	19	10	7	1.4	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	5	R.E.C.W	Dr.Di.K
8	•	BN	1866	Apr	6	detached	•	10	5	3	1.7	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
9	•	BN	1866	Jul	20	terraced	•	7	3	3	1	2	•	•	•	1	•	•	•	•	•	•	•	•	1	•	•	•	•	1	1	1	R/E.C/W	L.K
10	•	BN	1866	Jul	20	terraced	•	9	6	3	2	2	•	•	•	1	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	3	R.E/C.W	L.K
11	•	BN	1866	Oct	12	semi-det.	•	10	6	3	2	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
12	•	BN	1866	Oct	26	semi-det.	•	9	5	3	1.7	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
13	•	BN	1866	Oct	26	semi-det.	•	11	5	4	1.2	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
14	•	BN	1867	Jun	14	detached	•	37	18	15	1.2	4	1	•	•	•	•	•	1	•	•	•	•	1	1	1	•	•	•	3	2	11	R.E.C.W.A	Dr.Di.K
15	•	BN	1867	Jul	19	terraced	•	58	17	31	.5	5	1	•	•	•	•	•	1	•	•	•	•	1	1	1	•	1	•	3	3	9	R.E.C.W.A	Dr.Di.K
16	•	BN	1868	Feb	14	detached	•	14	7	4	1.8	3	•	•	1	•	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	3	R.E/C.W	P.K
17	•	BN	1870	May	13	detached	•	11	5	4	1.2	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
18	•	BN	1870	May	13	detached	•	7	5	2	2.5	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
19	•	BN	1872	May	31	detached	•	27	14	8	1.8	2	1	•	•	•	•	•	•	•	1	•	•	1	1	1	1	•	•	3	3	6	R.E.C.W.A	Dr.Di.K
20	•	BN	1872	Jun	21	detached	•	41	19	15	1.3	4	1	•	•	•	•	•	1	•	•	•	•	1	1	1	•	•	•	3	2	7	R.E.C.W.A	Dr.Di.K
21	•	BN	1872	Jun	28	detached	•	36	19	10	1.9	4	1	•	•	•	•	•	1	•	•	•	•	1	1	1	1	•	•	3	4	5	R.E.C.W.A	Dr.Di.K
22	•	BN	1875	Mar	19	detached	•	13	6	5	1.2	2	•	•	•	1	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	3	R.E/C.W	L.K
23	•	BN	1875	May	14	detached	1874	37	12	17	.7	4	1	•	•	•	•	•	1	•	•	•	•	1	1	1	•	•	•	3	2	4	R.E.C.W.A	Dr.Di.K
24	(selct.)	BN	1875	May	28	semi-det.	•	11	6	4	1.5	2	•	•	1	•	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	3	R.E/C.W	P.K
25	•	BN	1876	Oct	6	semi-det.	•	10	5	3	1.7	2	•	•	•	2	•	•	•	•	•	•	•	•	1	•	•	•	•	2	1	2	R.E.C/W	L.L.K
26	•	BN	1876	Oct	6	semi-det.	•	11	5	4	1.2	2	•	•	•	2	•	•	•	•	•	•	•	•	1	•	•	•	•	2	1	2	R.E.C/W	L.L.K
27	•	BN	1876	Dec	22	detached	•	22	12	8	1.5	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	1	•	•	2	3	6	R.E.C.W	Dr.Di.K
28	•	BN	1877	Jan	12	semi-det.	•	22	11	9	1.2	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	6	R.E.C.W	Dr.Di.K
29	•	BN	1877	Feb	23	semi-det.	•	24	12	8	1.5	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	6	R.E.C.W	Dr.Di.K
30	•	BN	1877	Mar	30	terraced	•	20	9	9	1	3	•	•	2	•	•	•	•	•	•	•	•	•	1	1	•	•	•	2	2	4	R.E.C.W	P.P.K
31	•	BN	1877	Mar	30	terraced	•	28	10	14	.7	3	•	•	2	•	•	•	•	•	•	•	•	•	1	1	•	•	•	2	2	4	R.E.C.W	P.P.K
32	•	BN	1877	Mar	30	terraced	•	23	10	9	1.1	4	•	•	2	•	•	•	•	•	•	•	•	•	1	1	•	•	•	2	2	4	R.E.C.W	P.P.K
33	•	BN	1877	Mar	30	terraced	•	20	9	7	1.3	3	•	•	2	•	•	•	•	•	•	•	•	•	1	1	•	•	•	2	2	4	R.E.C.W	P.P.K
34	•	BN	1877	Aug	24	detached	•	21	10	8	1.2	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	3	R.E.C.W	Dr.Di.K
35	•	BN	1877	Aug	24	detached	•	18	8	7	1.1	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	3	R.E.C.W	Dr.Di.K
36	•	BN	1877	Aug	24	detached	•	18	9	6	1.5	2	•	•	•	•	•	1	•	•	•	•	•	1	1	1	•	•	•	2	2	3	R.E.C.W	Si.Di.K
37	•	BN	1877	Aug	24	detached	•	17	9	6	1.5	2	•	•	•	•	•	1	•	•	•	•	•	1	1	1	•	•	•	2	2	4	R.E.C.W	Si.Di.K
38	•	BN	1877	Aug	24	detached	•	15	10	4	2.5	2	•	•	2	•	•	•	•	•	•	•	•	•	1	1	•	•	•	2	2	3	R.E.C.W	P.P.K
39	•	BN	1877	Aug	24	detached	•	17	9	6	1.5	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	3	R.E.C.W	Dr.Di.K
40	•	BN	1877	Sep	14	detached	•	29	10	12	.8	4	1	•	•	•	•	•	•	•	•	•	•	1	1	•	•	•	•	2	1	5	R.E.C/W	Dr.Di.K
41	•	BN	1877	Nov	16	semi-det.	•	23	13	7	1.9	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	7	R.E.C.W	Dr.Di.K
42	(selct.)	BN	1877	Nov	23	detached	•	31	15	11	1.4	4	1	•	•	•	•	•	•	•	1	•	•	1	1	1	•	•	•	3	2	8	R.E.C.W.A	Dr.Di.K
43	•	BN	1877	Nov	30	semi-det.	•	46	20	19	1.1	4	1	•	•	•	•	•	•	•	1	•	1	1	1	1	•	•	•	4	3	8	R.E.C.W.2A+	Dr.Di.K
44	•	BN	1879	Jan	31	semi-det.	•	33	16	12	1.3	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	7	R.E.C.W	Dr.Di.K
45	•	BN	1879	Aug	8	terraced	•	12	6	4	1.5	2	•	•	•	1	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	3	R.E/C.W	L.K
46	•	BN	1879	Aug	8	terraced	•	10	4	3	1.3	2	•	•	•	1	•	•	•	•	•	•	•	•	1	•	•	•	•	1	1	2	R/E.C/W	L.K
47	•	BN	1879	Aug	8	terraced	•	10	4	3	1.3	2	•	•	•	1	•	•	•	•	•	•	•	•	1	•	•	•	•	1	1	2	R/E.C/W	L.K
48	•	BN	1879	Aug	8	terraced	•	13	5	4	1.2	2	•	•	•	1	•	•	•	•	•	•	•	•	1	•	•	•	•	1	1	3	R/E.C/W	L.K
49	(selct.)	BN	1879	Oct	31	detached	•	46	23	19	1.2	3	1	•	•	1	•	•	•	•	•	1	•	•	1	1	•	•	1	3	3	9	R.E.C.W.A	Dr.L.K
50	•	TB	1879	Dec	6	detached	•	75	26	39	.7	4	1	•	•	•	1	•	1	•	•	•	•	1	1	1	•	2	•	4	4	9	R.E.C.W.2A+	Dr.Di.K
51	•	BN	1880	Apr	9	semi-det.	•	37	13	19	.7	4	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	5	R.E.C.W	Dr.Di.K
52	•	BN	1880	Apr	30	detached	•	56	19	29	.7	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	1	2	3	5	R.E.C.W	Dr.Di.K
53	•	BN	1880	Jul	9	detached	•	51	20	23	.9	3	1	•	•	•	•	•	•	1	•	1	•	1	1	1	•	•	1	4	3	6	R.E.C.W.2A+	Dr.Di.K
54	•	BN	1880	Oct	29	detached	1865	51	19	23	.8	4	•	•	•	•	•	•	•	•	•	•	•	1	1	1	•	1	•	1	4	5	R/E.C.W	Di.K
55	•	BN	1880	Dec	31	detached	•	39	17	15	1.1	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	1	•	•	2	3	4	R.E.C.W	Dr.Di.K

(page 1 of 10)

Key to functions (refer to table 2.8 for room labels):

R- reception; E- meals; C- cooking; W- washing up; A- alternative reception.

Note: A capital letter followed by (.) stands for one room designed for that function, i.e.R.E.C (there is one room for receiving, one for eating and one for cooking in the complex.
Two capital letters separated by (/) stand for one room in which those functions amalgamate, i.e.: E/C (one room is used for both eating and cooking in the complex.
2A+ stands for more than two alternative reception rooms found in the complex.

Key to journals:
TB- The Builder
BN- The Building News

Table 1. British Sample. Basic General Data

no. of plan	sub-sample	journal	data of publication: year	month	day	type of ground occup.	date of design/constr.	no. of spaces: all	funct.	trans.	Fntc./trans. ratio	no. of storeys	number of main day living rooms as labelled in the plans: drawing	lounge	parlour	living	liv/sit hall	sitting	morn./breakf.	boudoir	library/music	study/den	smok./billiard	dining	kitchen	scullery/wash	servery/sv.lobby	srvts. hall/room	pantry	availability and distribution of functions into rooms: no. of rooms used for: Rec.	Serv.	Beds.	(see key)	family of room labels (see table 2.8)
56	(seldt.)	BN	1881	Jun	17	detached	•	40	19	17	1.1	3	1	•	•	•	•	•	•	•	•	1	•	1	1	1	•	1	•	3	3	6	R.E.C.W.A	Dr.Di.K
57	•	BN	1881	Jun	24	detached	•	94	39	44	.9	4	1	•	•	•	•	•	1	1	1	•	2	1	1	1	•	1	1	7	5	14	R.E.C.W.2A+	Dr.Di.K
58	•	TB	1881	Jul	30	detached	•	37	18	14	1.3	2	1	•	•	•	•	•	1	•	•	•	•	1	1	1	•	1	•	3	3	7	R.E.C.W.A	Dr.Di.K
59	•	BN	1882	Jan	13	semi-det.	•	9	5	3	1.7	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
60	•	BN	1882	Jan	20	semi-det.	•	11	5	3	1.7	2	•	•	•	1	•	•	•	•	•	•	•	•	1	•	•	•	•	1	1	3	R/E.C/W	L.K
61	•	BN	1882	Nov	3	detached	•	30	16	11	1.5	3	1	•	•	1	•	•	•	•	•	•	•	•	1	•	•	1	•	2	2	5	R.E.C/W	Dr.L.K
62	•	BN	1882	Nov	17	detached	1875	26	13	9	1.4	3	1	•	•	•	•	•	1	•	•	•	•	1	1	•	•	•	•	3	1	5	R.E.C/W.A	Dr.Di.K
63	•	TB	1883	Jun	30	terraced	•	17	8	7	1.1	2	•	•	2	•	•	•	•	•	•	•	•	•	1	1	•	•	•	2	2	4	R.E.C.W	P.P.K
64	•	TB	1883	Jun	30	terraced	•	15	7	7	1	2	•	•	2	•	•	•	•	•	•	•	•	•	1	1	•	•	•	2	2	3	R.E.C.W	P.P.K
65	•	TB	1883	Jun	30	terraced	•	11	6	4	1.5	2	•	•	1	•	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	3	R.E/C.W	P.K
66	•	TB	1883	Jun	30	terraced	•	10	5	4	1.2	2	•	•	1	•	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	2	R.E/C.W	P.K
67	•	TB	1883	Dec	8	terraced	•	27	13	10	1.3	5	1	•	•	•	•	•	1	•	•	•	•	1	1	1	•	•	•	3	2	6	R.E.C.W.A	Dr.Di.K
68	•	TB	1884	Jun	7	detached	•	40	14	17	.8	4	1	•	•	•	•	•	•	•	1	•	•	1	1	1	•	•	•	3	2	6	R.E.C.W.A	Dr.Di.K
69	•	BN	1885	Nov	6	semi-det.	•	12	5	5	1	2	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	•	1	1	3	R.E/C	P.K
70	•	BN	1886	Oct	22	semi-det.	•	13	5	6	.8	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.W
71	•	BN	1886	Oct	29	detached	•	62	24	27	.9	4	1	•	•	•	•	•	•	•	•	1	1	1	1	1	•	1	•	4	3	9	R.E.C.W.2A+	Dr.Di.K
72	(seldt.)	BN	1887	Dec	30	semi-det.	•	32	14	11	1.3	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	1	2	2	6	R.E.C.W	Dr.Di.K
73	•	BN	1888	Feb	24	detached	•	18	9	6	1.5	2	•	•	•	•	1	1	•	•	•	•	•	•	1	•	•	•	•	2	1	4	R.E.C.W	H.Si.K
74	•	BN	1888	Feb	24	detached	•	17	11	5	2.2	2	•	•	•	•	•	2	•	•	•	•	•	•	1	1	•	•	•	2	2	4	R.E.C/W	Si.Si.K
75	•	BN	1888	Jul	13	detached	•	47	20	14	1.4	4	1	•	•	•	•	•	1	•	1	•	•	1	1	1	1	•	1	4	4	8	R.E.C.W.2A+	Dr.Di.K
76	•	BN	1889	Jan	25	semi-det.	•	32	14	13	1.1	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	1	2	3	7	R.E.C.W	Dr.Di.K
77	(seldt.)	BN	1889	Jan	25	semi-det.	•	27	14	8	1.8	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	1	2	3	7	R.E.C.W	Dr.Di.K
78	•	BN	1889	Jan	25	semi-det.	•	31	13	11	1.2	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	7	R.E.C.W	Dr.Di.K
79	•	BN	1889	Apr	19	detached	•	38	13	18	.7	4	1	•	•	•	•	•	1	•	•	•	•	1	1	1	•	•	•	3	2	5	R.E.C.W.A	Dr.Di.K
80	•	BN	1889	Oct	4	detached	•	23	12	7	1.7	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	4	R.E.C.W	Dr.Di.K
81	(seldt.)	BN	1889	Oct	18	semi-det.	•	13	6	4	1.5	2	•	•	•	1	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	3	R.E/C.W	L.K
82	•	BN	1889	Oct	23	detached	•	19	10	6	1.7	2	•	•	1	1	•	•	•	•	•	•	•	•	1	1	•	•	•	2	2	4	R.E.C.W	P.L.K.
83	•	BN	1889	Dec	27	semi-det.	•	43	22	15	1.5	3	1	•	•	•	•	•	•	•	•	1	1	1	1	1	•	•	•	4	2	8	R.E.C.W.2A+	Dr.Di.K
84	•	BN	1889	Dec	27	semi-det.	•	35	18	14	1.3	3	1	•	•	•	•	•	•	•	•	1	•	1	1	1	•	1	•	3	3	9	R.E.C.W.A	Dr.Di.K
85	•	TB	1890	Jan	11	terraced	•	13	6	5	1.2	2	•	•	1	•	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	3	R.E/C.W	P.K
86	(seldt.)	BN	1890	Jan	24	detached	•	20	13	5	2.6	2	1	•	•	•	•	•	•	•	•	1	•	1	1	1	•	•	1	3	3	4	R.E.C.W.A	Dr.Di.K
87	•	TB	1890	Jun	14	semi-det.	•	25	9	10	.9	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	3	R.E.C.W	Dr.Di.K
88	•	TB	1890	Oct	4	terraced	•	10	5	3	1.7	2	•	•	1	•	•	•	•	•	•	•	•	•	•	1	•	•	•	0	1	3	R/E/C.W	P
89	•	TB	1890	Oct	4	terraced	•	11	6	3	2	2	•	•	1	•	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	3	R.E/C.W	P.K
90	•	TB	1891	May	16	detached	•	20	13	5	2.6	2	1	•	•	•	1	•	•	•	•	1	•	1	1	1	•	•	•	4	2	4	R.E.C.W.2A+	Dr.Di.K
91	•	TB	1891	Jul	11	semi-det.	•	20	10	7	1.4	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	4	R.E.C.W	Dr.Di.K
92	•	BN	1892	Jan	22	detached	•	24	10	9	1.1	3	•	•	•	1	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	4	R.E/C.W	L.K
93	•	BN	1892	Feb	5	detached	•	20	11	7	1.6	2	•	•	•	•	1	•	•	•	•	•	•	1	1	•	•	•	•	2	1	4	R.E.C	H.Di.K
94	•	TB	1892	Jul	16	detached	•	24	13	8	1.6	2	1	•	•	•	•	•	•	•	1	•	•	1	1	1	•	•	•	3	2	5	R.E.C.W.A	Dr.Di.K
95	•	TB	1892	Nov	26	detached	•	32	14	14	1	3	1	•	•	•	•	•	•	•	•	1	•	1	1	1	•	•	•	3	2	6	R.E.C.W.A	Dr.Di.K
96	•	BN	1892	Dec	2	semi-det.	•	11	6	3	2	2	•	•	•	1	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	3	R.E/C.W	L.K
97	•	BN	1892	Dec	9	detached	•	55	24	24	1	4	1	•	•	•	•	•	•	•	•	•	2	1	1	•	•	2	•	4	3	9	R.E.C/W.2A+	Dr.Di.K
98	•	TB	1893	Jan	28	semi-det.	•	28	12	11	1.1	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	4	R.E.C.W	Dr.Di.K
99	•	BN	1893	Feb	24	detached	•	29	14	10	1.4	2	1	•	•	•	•	•	•	•	•	1	•	1	1	1	•	•	•	3	2	7	R.E.C.W.A	Dr.Di.K
100	•	BN	1893	Apr	7	detached	•	32	14	12	1.2	2	1	•	•	•	•	•	•	•	•	1	•	1	1	1	1	•	•	3	3	6	R.E.C.W.A	Dr.Di.K
101	(seldt.)	BN	1894	Feb	2	semi-det.	•	57	23	23	1	4	1	•	•	•	•	•	•	•	1	•	•	1	1	1	•	•	1	3	3	8	R.E.C.W.A	Dr.Di.K
102	•	BN	1894	Apr	20	terraced	•	51	24	21	1.1	5	1	•	1	•	•	•	•	•	•	•	•	1	1	1	1	2	•	3	5	10	R.E.C.W.A	Dr.Di.K
103	•	BN	1894	Apr	20	terraced	•	52	22	19	1.2	5	1	•	•	•	1	•	1	•	•	•	•	1	1	1	1	1	•	4	5	7	R.E.C.W.2A+	Dr.Di.K
104	•	BN	1894	Jun	15	detached	•	28	13	10	1.3	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	1	2	3	6	R.E.C.W	Dr.Di.K
105	•	TB	1894	Sep	29	semi-det.	•	28	18	8	2.2	2	1	•	•	•	1	•	•	•	•	1	•	1	1	1	•	•	1	4	4	7	R.E.C.W.2A+	Dr.Di.K
106	•	TB	1895	Sep	7	detached	•	46	23	18	1.3	2	1	•	•	•	1	•	•	•	1	•	1	1	1	1	•	1	1	5	4	8	R.E.C.W.2A+	Dr.Di.K
107	•	BN	1895	Sep	27	terraced	•	49	21	23	.9	6	2	•	•	•	1	•	•	•	1	•	•	•	1	1	•	2	•	5	5	7	R.E.C.W.2A+	Dr.Di.K
108	•	BN	1895	Sep	27	terraced	•	52	22	25	.9	6	1	•	•	•	•	•	1	•	1	•	•	1	1	1	•	2	•	4	4	7	R.E.C.W.2A+	Dr.Di.K
109	•	BN	1895	Sep	27	terraced	•	46	22	20	1.1	6	1	•	•	•	•	•	1	•	1	•	•	1	1	1	•	2	•	4	4	7	R.E.C.W.2A+	Dr.Di.K
110	•	BN	1895	Sep	27	terraced	•	56	23	26	.9	6	1	•	•	•	•	•	1	•	1	•	•	•	1	1	•	2	•	4	4	8	R.E.C.W.2A+	Dr.Di.K

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Key to functions (refer to table 2.8 for room labels):

R- reception; E- meals; C-cooking; W-washing up; A-alternative reception.

Note: A capital letter followed by (.) stands for one room designed for that function, i.e.R.E.C (there is one room for receiving, one for eating and one for cooking in the complex.
Two capital letters separated by (/) stand for one room in which those functions amalgamate, i.e.: E/C (one room is used for both eating and cooking in the complex.
2A+ stands for more than two alternative reception rooms found in the complex.

Key to journals:
TB- The Builder
BN- The Building News

Table 1. British Sample. Basic General Data

no. of plan	sub-sample	journal	date of publication: year	month	day	type of ground occup.	date of design/ constr.	no. of spaces: all	funct.	trans.	Fnct./ trans. ratio	no. of storeys	number of main day living rooms as labelled in the plans: drawing	lounge	parlour	living	liv/sit hall	sitting	morn./ breakf.	boudoir	library/ music	study/ den	smok./ billiard	dining	kitchen	scullery /wash	servery/ sv.lobby	srvts. hall/room	pantry	availability and distribution of functions into rooms: no. of rooms used for: Rec.	Serv.	Beds.	(see key)	family of room labels (see table 2.8)
111	•	BN	1895	Sep	27	terraced	•	52	22	23	1	6	1	•	•	•	•	•	1	•	•	•	1	1	1	1	•	2	•	4	4	7	R.E.C.W.2A+	Dr.Di.K
112	•	BN	1895	Nov	15	detached	•	39	18	14	1.3	3	1	•	•	•	•	•	1	1	•	•	•	1	1	1	•	1	•	4	3	8	R.E.C.W.2A+	Dr.Di.K
113	•	BN	1895	Dec	6	detached	•	38	20	10	2	3	1	•	•	•	•	•	1	•	•	•	•	1	1	1	•	1	•	3	3	8	R.E.C.W.A	Dr.Di.K
114	(selct.)	TB	1895	Dec	14	terraced	•	16	8	5	1.6	2	•	•	1	•	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	4	R.E/C.W	P.K
115	•	TB	1896	Feb	22	detached	•	40	17	19	.9	4	1	•	•	•	•	•	•	•	1	•	•	1	1	1	•	•	1	3	3	6	R.E.C.W.A	Dr.Di.K
116	(selct.)	BN	1897	Apr	2	detached	•	19	12	5	2.4	2	1	•	•	•	•	•	1	•	•	•	•	1	1	1	•	•	•	3	2	4	R.E.C.W.A	Dr.Di.K
117	•	BN	1897	Jun	4	semi-det.	•	26	13	9	1.4	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	5	R.E.C.W	Dr.Di.K
118	•	TB	1898	Oct	15	detached	1896	63	25	24	1	4	1	•	•	•	•	•	•	•	1	•	•	1	1	1	•	1	1	3	5	10	R.E.C.W.A	Dr.Di.K
119	•	BN	1899	Aug	11	detached	•	19	12	6	2	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	6	R.E.C.W	Dr.Di.K
120	•	BN	1899	Sep	29	semi-det.	•	14	8	4	2	2	•	•	1	•	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	3	R.E/C.W	P.K
121	•	TB	1899	Dec	23	detached	•	41	21	13	1.6	2	1	•	•	•	•	•	•	•	•	1	•	1	1	1	•	1	1	3	4	8	R.E.C.W.A	Dr.Di.K
122	•	BN	1900	Feb	16	terraced	•	56	23	28	.8	5	1	•	•	•	•	•	•	•	1	•	•	1	1	1	1	1	1	3	5	8	R.E.C.W.A	Dr.Di.K
123	•	BN	1900	Feb	16	terraced	•	46	16	19	.8	5	1	•	•	•	•	•	•	•	1	•	•	1	1	1	•	•	1	3	3	6	R.E.C.W.A	Dr.Di.K
124	•	TB	1900	Mar	17	semi-det.	•	25	11	11	1	3	1	•	•	•	•	1	•	•	•	•	•	•	1	1	•	•	•	2	2	5	R.E.C.W	Dr.Si.K
125	•	TB	1900	Mar	17	semi-det.	•	24	10	10	1	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	5	R.E.C.W	Dr.Di.K
126	•	TB	1900	Mar	17	semi-det.	•	23	11	10	1.1	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	5	R.E.C.W	Dr.Di.K
127	•	TB	1900	Mar	17	semi-det.	•	24	11	10	1.1	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	5	R.E.C.W	Dr.Di.K
128	•	TB	1900	Mar	17	semi-det.	•	23	11	9	1.2	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	5	R.E.C.W	Dr.Di.K
129	•	TB	1900	Mar	17	semi-det.	•	23	10	10	1	3	•	•	•	•	•	1	•	•	•	•	•	1	1	1	•	•	•	2	2	5	R.E.C.W	Si.Di.K
130	•	TB	1900	Mar	17	semi-det.	•	26	10	12	.8	3	•	•	•	•	•	1	•	•	•	•	•	1	1	1	•	•	•	2	2	5	R.E.C.W	Si.Di.K
131	•	TB	1900	Mar	17	semi-det.	•	29	15	11	1.4	3	1	•	•	•	1	•	•	•	•	•	•	1	1	1	•	•	•	3	3	8	R.E.C.W.A	Dr.Di.K
132	•	TB	1900	Mar	17	semi-det.	•	22	11	9	1.2	3	•	•	•	•	•	1	•	•	•	•	•	1	1	1	•	•	•	2	2	6	R.E.C.W	Si.Di.K
133	•	TB	1900	Mar	17	semi-det.	•	23	11	9	1.2	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	6	R.E.C.W	Dr.Di.K
134	(selct.)	BN	1900	Aug	24	semi-det.	•	30	14	12	1.2	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	1	•	•	2	3	6	R.E.C.W	Dr.Di.K
135	•	BN	1900	Aug	24	semi-det.	•	29	13	12	1.1	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	1	•	1	2	4	6	R.E.C.W	Dr.Di.K
136	•	BN	1900	Aug	24	semi-det.	•	27	15	10	1.5	3	1	•	•	•	1	•	•	•	•	•	•	1	1	1	•	•	1	3	3	6	R.E.C.W.A	Dr.Di.K
137	(selct.)	BN	1900	Sep	7	detached	•	23	13	5	2.6	2	1	•	•	•	•	•	•	•	•	1	•	1	1	1	1	•	•	3	3	5	R.E.C.W.A	Dr.Di.K
138	•	TB	1901	Jan	19	detached	•	41	19	16	1.2	4	1	•	•	•	•	•	•	•	•	•	•	1	1	1	1	•	•	2	3	5	R.E.C.W	Dr.Di.K
139	•	BN	1901	Jul	5	detached	•	31	13	12	1.1	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	5	R.E.C.W	Dr.Di.K
140	•	BN	1901	Sep	20	semi-det.	•	47	18	19	.9	4	1	•	•	1	•	•	•	•	•	•	•	•	1	1	1	•	•	2	3	6	R.E.C.W	Dr.L.K
141	•	BN	1901	Sep	20	semi-det.	•	43	21	15	1.4	3	1	•	•	1	•	•	•	•	•	1	•	•	1	1	•	1	1	3	4	5	R.E.C.W.A	Dr.L.K
142	•	BN	1901	Sep	20	semi-det.	•	53	25	23	1.1	4	2	•	•	•	•	•	•	•	•	•	•	1	1	1	1	•	1	3	6	5	R.E.C.W.A	Dr.Di.K
143	(selct.)	BN	1902	Apr	18	semi-det.	•	29	15	12	1.2	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	1	2	3	7	R.E.C.W	Dr.Di.K
144	•	BN	1902	Apr	18	semi-det.	•	23	11	7	1.6	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	5	R.E.C.W	Dr.Di.K
145	•	TB	1902	May	10	terraced	•	12	6	3	2	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
146	•	BN	1902	May	23	detached	•	38	18	16	1.1	2	1	•	•	•	•	•	•	•	•	•	1	1	1	1	1	•	•	3	3	7	R.E.C.W.A	Dr.Di.K
147	•	BN	1902	Nov	21	terraced	•	75	31	38	.8	5	1	•	•	•	•	•	•	1	•	•	•	1	1	1	1	1	•	3	5	8	R.E.C.W.A	Sa.Di.K
148	•	BN	1902	Nov	21	terraced	•	68	25	38	.7	4	1	•	•	•	1	•	•	•	•	•	•	1	1	1	1	•	1	3	5	7	R.E.C.W.A	Dr.Di.K
149	•	BN	1902	Nov	21	semi-det.	•	62	25	28	.9	5	1	•	•	•	1	•	•	•	•	•	•	1	1	1	1	1	1	3	6	7	R.E.C.W.A	Dr.Di.K
150	•	BN	1903	Apr	3	semi-det.	•	17	10	5	2	2	•	•	•	•	1	1	•	•	•	•	•	•	1	1	•	•	•	2	2	4	R.E/C.W.A	Si.K
151	•	TB	1903	May	9	detached	•	46	21	19	1.1	2	1	•	•	•	•	•	•	•	1	•	1	1	1	1	1	1	•	4	4	8	R.E.C.W.2A+	Dr.Di.K
152	•	TB	1904	Feb	13	semi-det.	•	13	7	5	1.4	2	•	•	1	1	•	•	•	•	•	•	•	•	1	•	•	•	•	2	1	3	R.E.C/W	P.L.K.
153	(selct.)	TB	1904	Feb	13	semi-det.	•	18	10	6	1.7	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	5	R.E.C.W	Dr.Di.K
154	•	TB	1904	Feb	13	semi-det.	•	8	5	2	2.5	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
155	•	BN	1904	Jul	1	detached	•	20	8	9	.9	2	•	•	•	•	•	•	•	•	1	1	•	1	1	1	•	•	•	3	2	3	R.E.C.W.A	M.Di.K
156	•	BN	1904	Jul	8	detached	•	23	13	7	1.9	2	1	•	•	•	1	•	•	•	•	•	•	1	1	1	•	•	1	3	2	5	R.E.C.W.A	Dr.Di.K
157	•	TB	1904	Sep	24	detached	•	60	27	22	1.2	3	1	•	•	•	•	•	1	•	•	•	1	1	1	1	•	1	1	4	4	10	R.E.C.W.2A+	Dr.Di.K
158	(selct.)	BN	1904	Sep	30	semi-det.	•	33	16	12	1.3	4	1	•	•	•	•	•	•	•	•	1	•	1	1	1	•	•	•	3	2	6	R.E.C.W.A	Dr.Di.K
159	(selct.)	TB	1904	Nov	19	detached	•	16	7	4	1.8	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L
160	(selct.)	TB	1904	Nov	19	detached	•	25	12	9	1.3	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	1	2	3	5	R.E.C.W	Dr.Di.K
161	•	BN	1904	Nov	25	semi-det.	•	45	21	17	1.2	4	1	•	•	•	•	•	•	•	•	1	•	1	1	•	1	•	1	3	3	6	R.E.C/W.A	Dr.Di.K
162	(selct.)	BN	1904	Nov	25	detached	•	35	17	12	1.4	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	6	R.E.C.W	Dr.Di.K
163	•	BN	1905	Feb	10	semi-det.	•	15	9	6	1.5	2	•	•	•	•	•	1	•	•	•	•	•	•	1	1	•	•	•	1	2	4	R.E/C.W	Si.K
164	•	BN	1905	Dec	8	detached	•	37	15	13	1.2	2	1	•	•	•	•	•	1	•	•	•	•	1	1	1	•	•	•	3	2	6	R.E.C.W.A	Dr.Di.K
165	•	TB	1906	Jan	27	semi-det.	1905	10	5	3	1.7	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	0	1	3	R/E/C.W	L

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Key to functions (refer to table 2.8 for room labels):

R- reception; E- meals; C-cooking; W-washing up; A-alternative reception.

Note: A capital letter followed by (.) stands for one room designed for that function, i.e.R.E.C (there is one room for receiving, one for eating and one for cooking in the complex.
Two capital letters separated by (/) stand for one room in which those functions amalgamate, i.e.: E/C (one room is used for both eating and cooking in the complex.
2A+ stands for more than two alternative reception rooms found in the complex.

Key to journals:
TB- The Builder
BN- The Building News

Table 1. British Sample. Basic General Data

no. of plan	sub-sample	journal	date of publication: year	month	day	type of ground occup.	date of design/ constr.	no. of spaces: all	funct.	trans.	Fntc./ trans. ratio	no. of storeys	number of main day living rooms as labelled in the plans: drawing	lounge	parlour	living	liv/sit hall	sitting	morn./ breakf.	boudoir	library/ music	study/ den	smok/ billiard	dining	kitchen	scullery /wash	servery/ sv.lobby	srvts. hall/room	pantry	availability and distribution of functions into rooms: no. of rooms used for: Rec.	Serv.	Beds.	(see key)	family of room labels (see table 2.8)
166	•	BN	1906	Apr	13	detached	1904	37	17	11	1.5	3	1	•	•	•	•	•	•	•	•	•	1	1	1	1	•	•	•	3	2	7	R.E.C.W.A	Dr.Di.K
167	•	BN	1906	Jun	15	detached	•	30	16	10	1.6	2	1	•	•	•	•	•	•	•	•	1	•	1	1	1	•	•	•	3	2	6	R.E.C.W.A	Dr.Di.K
168	•	BN	1906	Jul	6	detached	•	40	18	15	1.2	3	1	•	•	•	•	•	1	•	•	•	•	1	1	1	•	•	•	3	2	8	R.E.C.W.A	Dr.Di.K
169	•	BN	1906	Aug	10	detached	•	22	11	10	1.1	2	1	•	•	•	•	•	•	•	•	•	•	1	1	•	•	•	•	2	1	6	R.E.C/W	Dr.Di.K
170	•	BN	1906	Nov	30	detached	•	18	11	6	1.8	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	4	R.E.C.W	Dr.Di.K
171	•	BN	1907	Jan	11	detached	•	25	15	5	3	2	1	•	•	•	•	•	•	•	1	•	•	1	1	1	•	•	•	3	2	5	R.E.C.W.A	Dr.Di.K
172	•	TB	1907	May	10	detached	•	20	11	7	1.6	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	4	R.E.C.W	Dr.Di.K
173	•	TB	1907	Jun	8	detached	•	20	9	9	1	3	•	•	•	•	•	1	•	•	•	•	•	1	1	•	•	•	•	2	1	5	R.E.C/W	Si.Di.K
174	•	TB	1907	Jun	8	detached	•	39	21	14	1.5	3	1	•	•	•	•	1	•	•	•	•	•	1	1	1	•	•	1	3	3	7	R.E.C.W.A	Dr.Di.K
175	•	TB	1907	Oct	7	detached	•	21	13	6	2.2	2	•	•	•	1	•	•	•	•	•	•	•	1	1	1	•	•	1	2	3	5	R.E.C.W	L.Di.K
176	•	TB	1907	Oct	26	detached	•	12	6	4	1.5	2	•	•	1	•	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	2	R.E/C.W	P.K
177	•	TB	1907	Dec	14	detached	•	15	6	5	1.2	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	0	1	3	R/E/C.W	L
178	•	TB	1908	Jun	6	detached	•	102	44	41	1.1	4	1	•	•	•	1	•	1	1	•	•	1	1	1	1	•	2	•	6	8	14	R.E.C.W2A+	Dr.Di.K
179	•	TB	1908	Jul	11	semi-det.	•	15	8	5	1.6	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L
180	•	TB	1908	Jul	11	semi-det.	•	12	5	4	1.2	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	2	R/E.C/W	L.S
181	•	TB	1908	Jul	11	semi-det.	•	15	7	6	1.2	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	0	1	3	R/E/C.W	L
182	•	BN	1908	Jul	24	detached	•	26	17	6	2.8	2	•	•	1	•	1	•	•	•	•	•	•	1	1	1	•	•	•	3	3	6	R.E.C.W.A	P.Di.K
183	•	TB	1908	Jul	25	detached	•	18	11	5	2.2	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	1	2	3	4	R.E.C.W	Dr.Di.K
184	•	BN	1908	Aug	7	detached	•	29	14	10	1.4	2	•	•	•	•	1	1	•	•	•	•	•	1	1	1	•	•	1	3	3	4	R.E.C.W.A	Si.Di.K
185	•	TB	1908	Sep	26	detached	•	13	6	5	1.2	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	0	1	3	R/E/C.W	L
186	•	TB	1908	Oct	10	semi-det.	•	14	6	4	1.5	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L
187	•	TB	1908	Oct	10	semi-det.	•	15	6	6	1	2	•	•	•	1	•	•	•	•	•	•	•	•	1	•	•	•	•	1	1	3	R/E.C/W	L.K
188	•	TB	1908	Oct	10	semi-det.	•	15	7	6	1.2	2	•	•	•	1	•	1	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	Si.L.S
189	•	BN	1908	Oct	16	detached	•	26	15	7	2.1	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	1	1	2	4	4	R.E.C.W	Dr.Di.K
190	•	BN	1908	Oct	16	detached	•	26	12	8	1.5	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	6	R.E.C.W	Dr.Di.K
191	(selct.)	BN	1908	Nov	20	detached	•	48	21	9	2.3	3	•	•	•	•	1	•	•	•	•	1	•	1	1	1	•	•	1	3	3	8	R.E.C.W.A	H.Di.K
192	(selct.)	BN	1909	Jan	15	detached	•	22	14	4	3.5	2	•	•	1	•	1	•	•	•	•	•	•	1	1	1	•	•	•	3	3	5	R.E.C.W.A	P.Di.K
193	•	BN	1909	Feb	12	semi-det.	•	27	12	10	1.2	3	2	•	•	•	•	•	•	•	•	1	•	•	1	1	•	•	•	3	2	4	R.E.C.W.A	R.R.K
194	•	TB	1909	Mar	20	detached	•	23	13	7	1.9	2	1	•	•	•	1	•	1	•	•	•	•	•	1	1	•	•	•	3	2	4	R.E.C.W.A	H.Dr.K
195	•	BN	1909	Apr	16	semi-det.	•	20	10	7	1.4	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	4	R.E.C.W	Dr.Di.K
196	•	TB	1909	Apr	24	detached	•	38	18	14	1.3	2	1	•	•	•	•	•	•	•	•	•	•	1	1	2	1	•	•	2	4	6	R.E.C.W	Dr.Di.K
197	•	TB	1909	May	1	detached	•	40	20	17	1.2	3	1	•	•	•	1	•	•	•	•	•	•	1	1	1	•	•	1	3	3	9	R.E.C.W.A	Dr.Di.K
198	•	BN	1909	May	28	terraced	•	52	26	14	1.9	4	1	•	•	•	1	•	•	•	•	•	•	1	1	1	1	•	•	3	3	8	R.E.C.W.A	Dr.Di.K
199	•	BN	1909	May	28	terraced	•	50	22	15	1.5	4	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	1	2	3	8	R.E.C.W	Dr.Di.K
200	•	BN	1909	May	28	terraced	•	49	23	15	1.5	4	1	•	•	•	1	•	•	•	•	•	1	1	1	1	•	•	1	4	3	7	R.E.C.W2A+	Dr.Di.K
201	(selct.)	BN	1909	May	28	terraced	•	42	20	13	1.5	4	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	8	R.E.C.W	Dr.Di.K
202	•	TB	1909	Jun	5	detached	•	24	12	8	1.5	2	1	•	•	•	1	•	•	•	•	•	•	1	1	1	•	•	1	3	3	4	R.E.C.W.A	Dr.Di.K
203	•	TB	1909	Jun	5	detached	•	32	19	10	1.9	3	1	•	•	•	1	•	•	•	•	•	•	1	1	1	•	•	1	3	3	8	R.E.C.W.A	Dr.Di.K
204	•	TB	1909	Jun	5	detached	•	43	17	16	1.1	2	1	•	•	•	•	•	1	•	•	1	•	1	1	1	1	•	•	4	3	7	R.E.C.W2A+	Dr.Di.K
205	•	BN	1909	Jun	11	detached	•	19	11	7	1.6	3	1	1	•	1	•	•	•	•	•	•	•	•	1	1	1	•	•	3	3	4	R.E.C.W.A	Dr.L.K
206	•	BN	1909	Jun	18	semi-det.	•	17	11	3	3.7	2	1	•	•	•	1	•	•	•	•	•	•	1	1	1	•	•	•	3	2	4	R.E.C.W.A	Dr.Di.K
207	•	TB	1910	Mar	12	terraced	•	16	9	7	1.3	2	•	•	1	•	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	4	R.E/C.W	P.K
208	•	TB	1910	Mar	12	terraced	•	13	7	5	1.4	2	•	•	1	•	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	3	R.E/C.W	P.K
209	•	TB	1910	Mar	12	terraced	•	15	7	7	1	2	•	•	1	•	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	3	R.E/C.W	P.K
210	•	TB	1910	Mar	12	terraced	•	13	7	5	1.4	2	•	•	1	•	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	3	R.E/C.W	P.K
211	(selct.)	TB	1910	Mar	12	terraced	•	24	12	9	1.3	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	1	2	3	5	R.E.C.W	Dr.Di.K
212	•	TB	1910	Mar	12	terraced	•	24	12	9	1.3	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	1	2	3	5	R.E.C.W	Dr.Di.K
213	•	TB	1910	Apr	16	detached	•	14	7	6	1.2	2	•	•	•	1	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	3	R.E/C.W	L.K
214	•	TB	1910	Apr	16	semi-det.	•	18	10	6	1.7	2	•	•	1	1	•	•	•	•	•	•	•	•	1	•	•	•	•	2	1	4	R.E.C	P.L.K.
215	•	TB	1910	Jul	2	detached	•	27	14	9	1.6	2	1	•	•	•	1	•	•	•	•	•	•	1	1	1	•	•	1	3	3	4	R.E.C.W.A	Dr.Di.K
216	(selct.)	TB	1910	Jul	2	detached	•	25	13	7	1.9	2	1	•	•	•	•	•	•	•	•	1	•	1	1	1	1	•	•	3	3	5	R.E.C.W.A	Dr.Di.K
217	•	TB	1910	Jul	9	terraced	•	16	7	6	1.2	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L
218	•	TB	1910	Jul	9	terraced	•	15	7	5	1.4	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L
219	•	BN	1910	Oct	14	terraced	•	17	10	6	1.7	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	4	R.E.C.W	Dr.Di.K
220	•	BN	1910	Oct	14	terraced	•	22	10	7	1.4	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	4	R.E.C.W	Dr.Di.K

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Key to functions (refer to table 2.8 for room labels):

R- reception; E- meals; C-cooking; W-washing up; A-alternative reception.

Note: A capital letter followed by (.) stands for one room designed for that function, i.e.R.E.C (there is one room for receiving, one for eating and one for cooking in the complex.
Two capital letters separated by (/) stand for one room in which those functions amalgamate, i.e.: E/C (one room is used for both eating and cooking in the complex.
2A+ stands for more than two alternative reception rooms found in the complex.

Key to journals:
TB- The Builder
BN- The Building News

Table 1. British Sample. Basic General Data

no. of plan	sub-sample	journal	data of publication			type of ground occup.	date of design/ constr.	no. of spaces			Fntc./ trans. ratio	no. of storeys	number of main day living rooms as labelled in the plans																	availability and distribution of functions into rooms — no. of rooms used for:				family of room labels (see table 2.8)
			year	month	day			all	funct.	trans.			drawing	lounge	parlour	living	liv/sit hall	sitting	morn./ breakf.	boudoir	library/ music	study/ den	smok/ billiard	dining	kitchen	scullery /wash	servery/ sv.lobby	srvts. hall/room	pantry	Rec.	Serv.	Beds.	(see key)	
221	•	BN	1911	Feb	17	semi-det.	•	28	15	7	2.1	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	1	2	3	5	R.E.C.W	Dr.Di.K
222	•	BN	1911	Apr	21	detached	•	32	17	11	1.5	4	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	1	2	3	6	R.E.C.W	Dr.Di.K
223	•	BN	1911	Aug	4	detached	•	42	19	14	1.4	3	1	•	•	•	•	•	1	•	•	•	•	1	1	1	•	•	1	3	3	8	R.E.C.W.A	Dr.Di.K
224	•	BN	1911	Nov	17	terraced	•	31	13	11	1.2	3	•	•	1	1	•	•	•	•	•	•	•	•	1	1	•	•	•	2	2	5	R.E.C.W	P.L.K.
225	•	BN	1911	Nov	17	terraced	•	34	13	12	1.1	3	•	•	1	1	•	•	•	•	•	•	•	•	1	1	•	•	•	2	2	5	R.E.C.W	P.L.K
226	(seld.)	BN	1911	Nov	17	terraced	•	29	13	13	1	3	•	•	•	•	•	1	•	•	•	•	•	1	1	1	•	•	•	2	2	5	R.E.C.W	Si.Di.K
227	•	BN	1911	Nov	17	terraced	•	31	13	13	1	3	•	•	•	•	•	1	•	•	•	•	•	1	1	1	•	•	•	2	2	5	R.E.C.W	Si.Di.K
228	•	BN	1911	Nov	17	terraced	•	31	12	14	.9	3	•	•	1	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	5	R.E.C.W	P.Di.K
229	•	BN	1911	Nov	17	terraced	•	32	13	14	.9	3	•	•	1	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	5	R.E.C.W	P.Di.K
230	•	BN	1912	Jun	14	detached	•	36	16	12	1.3	2	1	•	•	•	•	•	•	•	•	1	1	1	1	1	•	•	1	4	3	4	R.E.C.W.2A+	Dr.Di.K
231	•	BN	1912	Aug	23	detached	•	26	14	7	2	2	1	•	•	•	•	1	•	•	•	•	•	1	1	1	•	•	•	3	2	3	R.E.C.W.A	Dr.Di.K
232	•	BN	1913	Mar	14	detached	•	29	18	8	2.2	2	1	•	•	•	•	•	•	•	•	•	1	1	1	1	•	•	1	3	3	6	R.E.C.W.A	Dr.Di.K
233	•	BN	1913	Dec	12	terraced	•	46	17	24	.7	5	1	•	•	•	•	•	1	1	•	•	•	1	1	1	1	•	•	4	3	5	R.E.C.W.2A+	Dr.Di.K
234	•	BN	1914	Jan	2	detached	•	27	13	9	1.4	2	1	•	•	•	•	•	•	•	•	1	•	1	1	1	•	•	1	3	3	3	R.E.C.W.A	Dr.Di.K
235	•	BN	1914	Mar	27	terraced	•	13	6	4	1.5	2	•	•	1	1	•	•	•	•	•	•	•	•	1	•	•	•	•	2	1	3	R.E.C/W	P.L.K.
236	•	BN	1914	Mar	27	terraced	•	13	5	4	1.2	2	•	•	•	1	•	•	•	•	•	•	•	•	1	•	•	•	•	1	1	3	R/E.C/W	L.K
237	•	BN	1914	Mar	27	terraced	•	12	6	4	1.5	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
238	•	BN	1914	Mar	27	terraced	•	11	5	3	1.7	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
239	•	BN	1914	Apr	17	semi-det.	•	17	5	5	1	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	2	R/E.C/W	L.S
240	•	BN	1914	Apr	17	semi-det.	•	13	5	5	1	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	2	R/E.C/W	L.S
241	•	BN	1914	Apr	17	semi-det.	•	11	4	3	1.3	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	1	R/E.C/W	L.S
242	•	BN	1914	May	15	detached	•	19	11	6	1.8	2	1	•	•	•	1	•	•	•	•	•	•	1	1	1	•	•	•	3	2	4	R.E.C.W.A	Dr.Di.K
243	•	BN	1914	Jun	19	detached	•	27	17	7	2.4	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	1	•	1	2	3	7	R.E.C.W	Dr.Di.K
244	•	BN	1914	Aug	14	detached	•	20	10	5	2	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	4	R.E.C.W	Dr.Di.K
245	•	BN	1915	Apr	9	terraced	•	11	7	3	2.3	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
246	•	BN	1915	Apr	9	terraced	•	15	7	5	1.4	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
247	•	BN	1916	Jun	7	detached	•	33	13	14	.9	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	1	2	3	5	R.E.C.W	Dr.Di.K
248	•	BN	1916	Sep	6	detached	•	24	10	10	1	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	4	R.E.C.W	Dr.Di.K
249	•	BN	1916	Nov	15	terraced	•	11	6	5	1.2	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	2	R.E/C.W	P.L
250	•	BN	1916	Nov	15	terraced	•	9	6	3	2	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	2	R.E/C.W	P.L
251	•	BN	1916	Nov	15	terraced	•	10	6	3	2	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	2	R.E/C.W	P.L
252	•	BN	1916	Nov	15	terraced	•	16	7	6	1.2	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L
253	(seld.)	BN	1916	Nov	15	terraced	•	13	7	5	1.4	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
254	•	BN	1916	Nov	15	terraced	•	13	7	4	1.8	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
255	•	BN	1916	Nov	15	terraced	•	11	6	4	1.5	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	2	R.E/C.W	P.L
256	•	BN	1916	Nov	15	terraced	•	11	6	4	1.5	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	2	R.E/C.W	P.L
257	•	BN	1917	Jan	31	detached	•	21	10	9	1.1	2	•	•	•	1	•	•	•	•	•	•	•	1	1	•	•	•	•	2	1	3	R.E.C/W	L.Di.K
258	•	BN	1917	Mar	14	detached	•	19	12	6	2	2	•	•	•	1	•	•	•	•	•	•	1	•	1	1	1	•	•	2	3	4	R/E.C.W.A	L.K
259	•	BN	1918	Feb	6	terraced	•	12	6	4	1.5	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	2	R.E.C/W	P.L.S
260	•	BN	1918	Feb	6	terraced	•	11	6	3	2	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	2	R.E.C/W	P.L.S
261	•	BN	1918	Feb	6	terraced	•	10	5	3	1.7	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	2	R/E.C/W	L.S
262	•	BN	1918	Feb	20	semi-det.	•	16	6	5	1.2	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
263	(seld.)	BN	1918	Feb	20	semi-det.	•	18	7	8	.9	2	•	•	•	1	•	1	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	Si.L.S
264	•	BN	1918	Apr	17	terraced	•	16	7	5	1.4	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	2	R.E.C/W	P.L.S
265	•	BN	1918	Apr	17	terraced	•	16	7	5	1.4	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	2	R.E.C/W	P.L.S
266	•	BN	1918	Apr	17	terraced	•	15	7	6	1.2	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	2	R.E.C/W	P.L.S
267	•	BN	1918	May	1	terraced	•	13	7	4	1.8	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
268	•	BN	1918	May	1	terraced	•	13	7	4	1.8	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
269	•	BN	1918	May	1	terraced	•	14	7	4	1.8	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
270	•	BN	1918	May	8	terraced	•	17	7	5	1.4	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	2	R.E/C.W	P.L
271	•	BN	1918	May	8	terraced	•	15	7	5	1.4	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	2	R.E/C.W	P.L
272	•	BN	1918	May	8	terraced	•	15	7	5	1.4	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	2	R.E/C.W	P.L
273	•	BN	1918	May	22	terraced	•	16	8	6	1.3	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
274	•	BN	1918	May	22	terraced	•	13	6	4	1.5	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
275	•	BN	1918	May	22	terraced	•	12	7	4	1.8	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S

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Key to functions (refer to table 2.8 for room labels):

R- reception; E- meals; C-cooking; W-washing up; A-alternative reception.

Note: A capital letter followed by (.) stands for one room designed for that function, i.e.R.E.C (there is one room for receiving, one for eating and one for cooking in the complex.
Two capital letters separated by (/) stand for one room in which those functions amalgamate, i.e.: E/C (one room is used for both eating and cooking in the complex.
2A+ stands for more than two alternative reception rooms found in the complex.

Key to journals:
TB- The Builder
BN- The Building News

Table 1. British Sample. Basic General Data

no. of plan	sub-sample	journal	data of publication: year	month	day	type of ground occup.	date of design/ constr.	no. of spaces: all	funct.	trans.	Fntc./ trans. ratio	no. of storeys	number of main day living rooms as labelled in the plans: drawing	lounge	parlour	living	liv/sit hall	sitting	morn./ breakf.	boudoir	library/ music	study/ den	smok./ billiard	dining	kitchen	scullery /wash	servery/ sv.lobby	srvts. hall/room	pantry	availability and distribution of functions into rooms: no. of rooms used for: Rec.	Serv.	Beds.	(see key)	family of room labels (see table 2.8)
276	•	BN	1918	May	29	terraced	•	16	7	5	1.4	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L
277	•	BN	1918	May	29	terraced	•	14	7	4	1.8	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L
278	•	BN	1918	May	29	terraced	•	16	6	5	1.2	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	2	R.E/C.W	P.L
279	•	BN	1918	May	29	terraced	•	14	6	4	1.5	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	2	R.E/C.W	P.L
280	•	BN	1918	May	29	terraced	•	13	6	4	1.5	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	2	R.E/C.W	P.L
281	•	BN	1918	May	29	terraced	•	14	6	4	1.5	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	2	R.E/C.W	P.L
282	•	BN	1918	Jun	5	terraced	•	14	6	5	1.2	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
283	•	BN	1918	Jun	5	terraced	•	12	5	4	1.2	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
284	•	BN	1918	Jul	10	terraced	•	13	6	4	1.5	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	2	R.E.C/W	P.L.S
285	•	BN	1918	Jul	10	terraced	•	15	6	5	1.2	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	2	R.E.C/W	P.L.S
286	•	BN	1918	Sep	11	terraced	•	12	6	4	1.5	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	0	1	3	R/E/C.W	L
287	•	BN	1918	Sep	11	terraced	•	10	6	3	2	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	2	R.E/C.W	P.L
288	•	BN	1918	Sep	11	semi-det.	•	13	7	5	1.4	2	•	•	1	•	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	3	R.E/C.W	P.K
289	•	BN	1918	Oct	2	semi-det.	•	16	8	5	1.6	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L
290	•	BN	1918	Oct	9	terraced	•	16	7	5	1.4	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L
291	•	BN	1918	Oct	9	terraced	•	13	6	5	1.2	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
292	•	BN	1918	Oct	16	detached	•	20	12	4	3	2	•	•	1	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	4	R.E.C.W	P.Di.K
293	•	BN	1918	Oct	16	semi-det.	•	19	8	6	1.3	2	•	•	•	1	•	•	•	•	•	•	•	1	1	•	•	•	•	2	1	3	R.E.C/W	L.Di.K
294	•	BN	1918	Nov	27	terraced	•	20	9	7	1.3	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	4	R.E.C/W	P.L.S
295	•	BN	1918	Nov	27	terraced	•	15	8	5	1.6	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
296	•	BN	1918	Dec	25	terraced	•	13	7	5	1.4	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
297	•	BN	1918	Dec	25	terraced	•	13	7	3	2.3	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
298	•	BN	1918	Dec	25	terraced	•	14	7	3	2.3	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
299	•	BN	1918	Dec	25	terraced	•	15	7	3	2.3	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
300	•	BN	1919	Jan	29	terraced	•	14	9	4	2.2	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	4	R.E.C/W	P.L.S
301	•	BN	1919	Jan	29	terraced	•	16	9	4	2.2	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	4	R.E.C/W	P.L.S
302	•	BN	1919	Jan	29	terraced	•	15	8	6	1.3	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
303	•	BN	1919	Jan	29	terraced	•	15	8	5	1.6	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	4	R.E.C/W	P.L.S
304	•	BN	1919	Feb	26	detached	•	22	12	6	2	2	1	•	•	•	•	•	•	•	•	1	•	1	1	1	•	•	•	3	2	4	R.E.C.W.A	Dr.Di.K
305	•	BN	1919	Mar	12	semi-det.	•	14	8	4	2	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
306	•	BN	1919	May	21	semi-det.	•	16	8	5	1.6	2	•	•	1	•	•	•	•	•	•	•	•	1	•	1	•	•	•	2	1	3	R.E.C/W	P.Di.S
307	•	BN	1919	May	21	semi-det.	•	18	8	6	1.3	2	•	•	1	•	•	•	•	•	•	•	•	1	•	1	•	•	•	2	1	3	R.E.C/W	P.Di.S
308	•	BN	1919	May	21	semi-det.	•	15	8	5	1.6	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
309	•	BN	1920	Jan	2	detached	•	32	15	11	1.4	2	1	•	•	•	•	•	•	•	•	1	•	1	1	•	1	1	•	3	3	5	R.E.C/W.A	Dr.Di.K
310	•	BN	1920	Jan	16	detached	•	37	14	11	1.3	2	1	•	•	•	•	•	•	•	•	•	•	1	1	•	•	1	•	2	2	5	R.E.C/W	Dr.Di.K
311	•	BN	1920	Jan	16	detached	•	28	15	8	1.9	2	1	•	•	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	4	4	R.E.C.W	Dr.Di.K
312	•	BN	1920	Feb	13	detached	•	26	13	10	1.3	3	•	•	•	•	•	1	•	•	•	•	•	1	1	1	•	•	•	2	2	5	R.E.C.W	Si.Di.K
313	•	BN	1920	Feb	20	semi-det.	•	19	8	7	1.1	2	•	•	1	•	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	3	R.E/C.W	P.K
314	•	BN	1920	Feb	20	semi-det.	•	17	8	5	1.6	2	•	•	1	•	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	3	R.E/C.W	P.K
315	•	BN	1920	Feb	20	semi-det.	•	15	6	4	1.5	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	2	R/E.C/W	L.S
316	•	BN	1920	Apr	16	terraced	•	18	8	6	1.3	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
317	•	BN	1920	Apr	16	terraced	•	16	8	5	1.6	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
318	•	BN	1920	Jun	25	semi-det.	•	18	8	6	1.3	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
319	•	BN	1920	Nov	26	semi-det.	•	18	9	5	1.8	2	•	•	•	1	•	•	•	•	•	•	•	•	1	2	•	•	•	1	3	3	R.E/C.W	L.K
320	•	BN	1921	Jan	7	semi-det.	1914	22	11	7	1.6	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	5	R.E.C.W	Dr.Di.K
321	•	BN	1921	Jan	7	detached	•	17	8	5	1.6	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L
322	•	BN	1921	Mar	4	semi-det.	•	16	8	5	1.6	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L
323	•	BN	1921	Mar	4	semi-det.	•	16	8	5	1.6	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L
324	•	BN	1921	Mar	4	detached	•	18	8	6	1.3	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L
325	•	BN	1921	Mar	25	detached	•	21	10	7	1.4	2	•	•	•	•	•	1	•	•	•	•	•	1	1	1	•	•	•	2	2	4	R.E.C.W	Si.Di.K
326	(seld.)	BN	1921	Apr	1	terraced	•	15	8	5	1.6	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
327	•	BN	1921	Apr	8	terraced	•	15	9	4	2.2	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	4	R.E.C/W	P.L.S
328	•	BN	1921	Apr	8	terraced	•	18	9	7	1.3	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	4	R.E.C/W	P.L.S
329	•	BN	1921	Apr	22	terraced	•	17	8	5	1.6	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
330	•	BN	1921	Apr	22	terraced	•	14	8	4	2	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S

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Key to functions (refer to table 2.8 for room labels):

R- reception; E- meals; C-cooking; W-washing up; A-alternative reception.

Note: A capital letter followed by (.) stands for one room designed for that function, i.e.R.E.C (there is one room for receiving, one for eating and one for cooking in the complex.
Two capital letters separated by (/) stand for one room in which those functions amalgamate, i.e.: E/C (one room is used for both eating and cooking in the complex.
2A+ stands for more than two alternative reception rooms found in the complex.

Key to journals:
TB- The Builder
BN- The Building News

Table 1. British Sample. Basic General Data

no. of plan	sub-sample	journal	data of publication			type of ground occup.	date of design/ constr.	no. of spaces			Fntc./ trans. ratio	no. of storeys	number of main day living rooms as labelled in the plans																	availability and distribution of functions into rooms: no. of rooms used for:				family of room labels (see table 2.8)
			year	month	day			all	funct.	trans.			drawing	lounge	parlour	living	liv/sit hall	sitting	morn./ breakf.	boudoir	library/ music	study/ den	smok/. billiard	dining	kitchen	scullery /wash	servery/ sv.lobby	srvts. hall/room	pantry	Rec.	Serv.	Beds.	(see key)	
331	(seldt.)	BN	1921	Apr	29	detached	•	11	6	3	2	1	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L
332	(seldt.)	BN	1921	May	20	terraced	•	16	8	5	1.6	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L
333	•	BN	1921	Jun	17	semi-det.	•	14	7	6	1.2	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L
334	•	BN	1921	Jun	17	semi-det.	•	16	7	5	1.4	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L
335	•	BN	1921	Jun	24	detached	•	26	13	8	1.6	2	•	1	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	4	R.E.C.W	Lo.Di.K
336	•	BN	1921	Aug	5	detached	•	27	13	9	1.4	2	•	•	•	1	1	•	•	•	•	•	•	•	1	1	•	•	•	2	2	3	R.E.C.W	H.L.K
337	•	BN	1921	Nov	18	semi-det.	•	17	8	5	1.6	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
338	•	BN	1922	Apr	28	detached	•	9	6	2	3	1	•	•	•	1	•	•	•	•	•	•	•	•	1	•	•	•	•	1	1	3	R/E.C/W	L.K
339	•	BN	1922	Apr	28	detached	•	14	9	3	3	1	•	•	•	1	•	•	•	•	•	1	•	1	1	•	•	•	•	3	1	3	R.E.C/W.A	L.Di.K
340	•	BN	1922	Mar	3	terraced	•	15	8	4	2	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	4	R.E.C/W	P.L.S
341	•	BN	1922	Jun	16	terraced	•	11	6	3	2	2	•	•	•	1	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	3	R.E/C.W	L.K
342	•	BN	1922	Jun	16	detached	•	10	6	3	2	1	•	•	•	1	•	•	•	•	•	•	•	•	1	•	•	•	•	1	1	3	R/E.C/W	L.K
343	•	BN	1922	Jun	23	semi-det.	•	15	7	6	1.2	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
344	•	BN	1922	Aug	4	semi-det.	•	12	6	4	1.5	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
345	•	BN	1922	Aug	11	terraced	•	14	7	4	1.8	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
346	•	BN	1922	Aug	11	terraced	•	11	6	4	1.5	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	0	1	3	R/E/C.W	L
347	•	BN	1922	Aug	11	terraced	•	16	7	4	1.8	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
348	•	BN	1922	Aug	11	terraced	•	17	8	5	1.6	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	4	R.E.C/W	P.L.S
349	•	BN	1922	Sep	8	detached	•	18	9	6	1.5	2	•	•	•	•	•	1	•	•	•	•	•	1	1	•	•	•	•	2	1	4	R.E.C/W	Si.Di.K
350	•	BN	1922	Sep	8	detached	•	15	8	4	2	2	•	•	•	1	•	•	•	•	•	•	•	1	•	1	•	•	•	2	1	3	R.E.C/W	L.Di.S
351	(seldt.)	BN	1922	Sep	29	terraced	•	17	8	7	1.1	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
352	•	BN	1922	Sep	29	semi-det.	•	21	8	9	.9	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L
353	•	BN	1923	Feb	16	semi-det.	•	15	6	5	1.2	2	•	•	•	1	•	•	•	•	•	•	•	•	1	•	•	•	•	1	1	2	R/E.C/W	L.K
354	•	BN	1923	Feb	16	semi-det.	•	16	9	5	1.8	2	•	•	•	1	•	•	•	•	•	•	•	1	1	•	•	•	•	2	1	4	R.E.C/W	L.Di.K
355	•	BN	1923	Feb	16	detached	•	20	8	7	1.1	2	•	•	•	1	•	1	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	Si.L
356	•	BN	1923	Feb	16	detached	•	20	9	7	1.3	2	•	•	•	1	•	1	•	•	•	•	•	•	•	1	•	•	•	1	1	4	R.E/C.W	Si.L
357	(seldt.)	BN	1923	Feb	16	detached	•	16	8	4	2	2	•	•	•	1	•	•	•	•	•	•	•	1	1	•	•	•	•	2	1	3	R.E.C/W	L.Di.K
358	•	BN	1923	Feb	16	detached	•	16	9	6	1.5	2	•	•	•	1	•	•	•	•	•	•	•	1	1	•	•	•	•	2	1	4	R.E.C/W	L.Di.K
359	•	BN	1923	Feb	16	semi-det.	•	18	10	7	1.4	2	•	•	•	1	•	•	•	•	•	•	•	1	1	•	•	•	•	2	1	4	R.E.C/W	L.Di.K
360	•	BN	1923	May	18	detached	•	28	14	12	1.2	3	1	•	•	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	2	6	R.E.C/W	Dr.Di.K
361	•	BN	1923	Jul	13	detached	•	21	13	5	2.6	2	•	•	•	1	•	•	•	•	•	•	•	1	1	•	1	•	•	2	2	4	R.E.C/W	L.Di.K
362	•	BN	1923	Jul	20	detached	•	38	14	13	1.1	3	1	•	•	•	•	•	1	•	•	•	•	•	1	•	•	•	1	2	2	6	R.E.C/W	Af.Mg.K
363	•	BN	1923	Aug	17	detached	•	30	15	8	1.9	3	1	•	•	•	•	•	•	•	•	•	1	1	1	1	•	•	1	3	3	5	R.E.C.W.A	Dr.Di.K
364	•	BN	1923	Aug	24	detached	•	23	10	8	1.2	2	1	•	•	•	•	•	•	•	•	•	•	1	1	•	•	•	•	2	1	4	R.E.C/W	Dr.Di.K
365	•	BN	1923	Aug	24	detached	•	18	11	5	2.2	2	•	•	•	1	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	4	R.E.C.W	L.Di.K
366	•	BN	1923	Sep	14	detached	•	38	21	12	1.8	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	1	2	3	9	R.E.C.W	Dr.Di.K
367	•	BN	1923	Sep	14	detached	•	13	7	3	2.3	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
368	•	BN	1923	Sep	28	terraced	•	15	7	4	1.8	2	•	•	1	•	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	3	R.E/C.W	P.K
369	•	BN	1923	Sep	28	terraced	•	13	7	5	1.4	2	•	•	1	•	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	3	R.E/C.W	P.K
370	•	BN	1923	Oct	5	detached	•	30	13	11	1.2	3	•	•	•	1	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	6	R.E.C.W	L.Di.K
371	•	BN	1923	Oct	12	detached	•	25	14	7	2	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	1	•	•	2	3	3	R.E.C.W	Dr.Di.K
372	•	BN	1923	Oct	19	detached	•	29	14	12	1.2	3	•	•	•	1	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	5	R.E.C.W	L.Di.K
373	•	BN	1923	Nov	30	terraced	•	15	8	5	1.6	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L
374	•	BN	1923	Nov	30	terraced	•	16	8	5	1.6	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L
375	•	BN	1923	Nov	30	terraced	•	15	8	4	2	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L
376	•	BN	1923	Dec	14	detached	•	34	16	9	1.8	2	1	•	•	•	•	•	•	•	•	1	•	1	1	1	•	•	1	3	3	5	R.E.C.W.A	Dr.Di.K
377	•	BN	1923	Dec	28	detached	•	23	14	8	1.8	3	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	5	R.E.C.W	Dr.Di.K
378	•	BN	1924	Jan	18	detached	•	19	9	7	1.3	2	•	•	•	•	•	•	•	•	•	•	•	1	1	•	•	•	•	1	1	4	R/E.C/W	Di.K
379	•	BN	1924	Jan	25	semi-det.	•	16	8	6	1.3	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L
380	•	BN	1924	Jan	25	semi-det.	•	13	7	4	1.8	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
381	•	BN	1924	Feb	29	detached	•	37	17	10	1.7	2	•	•	•	•	•	•	•	•	1	1	•	1	1	1	1	•	•	3	3	6	R.E.C.W.A	M.Di.K
382	•	BN	1924	Mar	14	detached	•	27	14	9	1.6	2	1	•	•	•	•	•	•	•	•	•	•	1	1	•	1	•	•	2	2	5	R.E.C/W	Dr.Di.K
383	•	BN	1924	Mar	28	semi-det.	•	20	11	7	1.6	2	•	•	•	•	•	1	•	•	•	•	•	1	1	1	•	•	•	2	2	4	R.E.C.W	Si.Di.K
384	•	BN	1924	May	2	detached	•	18	9	7	1.3	2	•	•	•	1	1	•	•	•	•	•	•	•	1	1	•	•	•	2	2	4	R.E.C/W	H.L.K
385	•	BN	1924	May	16	detached	•	29	15	9	1.7	3	•	•	•	•	•	2	•	•	•	•	•	1	1	•	•	•	•	3	1	5	R.E.C/W.A	Si.Di.K

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Key to functions (refer to table 2.8 for room labels):

R- reception; E- meals; C-cooking; W-washing up; A-alternative reception.

Note: A capital letter followed by (.) stands for one room designed for that function, i.e.R.E.C (there is one room for receiving, one for eating and one for cooking in the complex.
Two capital letters seperated by (/) stand for one room in which those functions amalgamate, i.e.: E/C (one room is used for both eating and cooking in the complex.
2A+ stands for more than two alternative reception rooms found in the complex.

Key to journals:
TB- The Builder
BN- The Building News

Table 1. British Sample. Basic General Data

no. of plan	sub-sample	journal	data of publication: year	month	day	type of ground occup.	date of design/ constr.	no. of spaces: all	funct.	trans.	Fntc./ trans. ratio	no. of storeys	number of main day living rooms as labelled in the plans: drawing	lounge	parlour	living	liv/sit hall	sitting	morn./ breakf.	boudoir	library/ music	study/ den	smok./ billiard	dining	kitchen	scullery /wash	servery/ sv.lobby	srvts. hall/room	pantry	availability and distribution of functions into rooms: no. of rooms used for: Rec.	Serv.	Beds.	(see key)	family of room labels (see table 2.8)
386	•	BN	1924	May	30	detached	•	25	12	9	1.3	2	1	•	•	•	•	•	1	•	•	•	•	1	1	•	•	•	1	3	2	5	R.E.C/W.A	Dr.Di.K
387	•	BN	1924	Aug	8	detached	•	23	11	8	1.4	2	1	•	•	•	•	•	•	•	•	•	•	1	1	•	•	•	•	2	1	5	R.E.C/W	Dr.Di.K
388	•	BN	1924	Sep	12	semi-det.	•	14	7	5	1.4	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L
389	•	BN	1924	Sep	12	detached	•	28	12	10	1.2	2	•	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	1	2	4	R/E.C.W	Di.K
390	•	BN	1924	Sep	19	semi-det.	•	15	6	6	1	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	0	1	3	R/E/C.W	L
391	•	BN	1924	Oct	3	terraced	•	17	7	6	1.2	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
392	•	BN	1924	Oct	3	terraced	•	16	7	3	2.3	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
393	•	BN	1924	Oct	3	terraced	•	16	8	6	1.3	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
394	•	BN	1924	Oct	3	terraced	•	17	8	5	1.6	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
395	•	BN	1924	Oct	3	terraced	•	13	7	3	2.3	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
396	•	BN	1924	Oct	3	semi-det.	•	11	7	1	7	1	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	0	1	3	R/E/C.W	L
397	•	BN	1924	Oct	3	semi-det.	•	8	6	1	6	1	•	•	•	1	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	3	R.E/C.W	L.K
398	•	BN	1925	Feb	6	semi-det.	•	15	7	4	1.8	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
399	(seldt.)	BN	1925	Feb	20	terraced	•	15	7	6	1.2	2	•	•	•	1	•	•	•	•	•	•	•	•	1	•	•	•	•	1	1	3	R/E.C/W	L.K
400	•	BN	1925	Feb	27	detached	•	22	11	7	1.6	2	•	•	•	1	•	•	•	•	•	•	•	1	1	•	•	•	•	2	1	4	R.E.C/W	L.Di.K
401	(seldt.)	BN	1925	Mar	20	detached	•	39	24	12	2	3	1	•	•	•	•	1	•	•	•	•	•	1	1	•	•	•	1	3	2	8	R.E.C/W.A	Dr.Di.K
402	•	BN	1925	May	8	detached	•	29	16	8	2	3	•	•	•	1	•	•	•	•	•	1	•	•	1	1	•	•	•	2	2	5	R/E.C.W.A	St.L.K
403	•	BN	1925	May	15	detached	•	19	11	5	2.2	2	•	•	•	1	•	•	•	•	•	•	•	1	1	•	•	•	•	2	1	3	R.E.C/W	L.Di.K
404	•	BN	1925	May	22	detached	•	18	11	5	2.2	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	4	R.E.C.W	Dr.Di.K
405	•	TB	1926	Jan	8	detached	•	37	18	10	1.8	2	•	•	•	1	•	•	•	•	•	1	•	1	1	1	•	1	1	3	4	7	R.E.C.W.A	L.Di.K
406	•	TB	1926	Jan	8	semi-det.	•	16	8	6	1.3	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L
407	•	TB	1926	Jan	8	semi-det.	•	27	13	7	1.9	3	1	•	•	•	1	•	•	•	•	•	•	1	1	1	•	•	•	3	2	5	R.E.C.W.A	Dr.Di.K
408	•	TB	1926	Jan	29	detached	•	15	8	4	2	2	•	•	•	1	•	•	•	•	•	•	•	1	1	•	•	•	•	2	1	3	R.E.C/W	L.Di.K
409	•	TB	1926	Jan	29	detached	•	16	9	4	2.2	2	•	•	•	1	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	3	R.E.C.W	L.Di.K
410	•	TB	1926	Mar	19	detached	•	42	22	14	1.6	2	1	•	•	•	•	1	•	•	•	1	•	1	1	1	•	1	1	4	4	7	R.E.C.W.2A+	Dr.Di.K
411	•	TB	1926	Apr	23	detached	•	23	12	8	1.5	2	•	•	•	1	•	•	•	•	1	•	•	•	1	1	•	•	•	2	2	4	R.E.C.W	Lb.L.K
412	•	TB	1926	May	14	detached	•	37	17	16	1.1	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	6	R.E.C.W	Dr.Di.K
413	•	TB	1926	Jun	5	detached	•	10	5	2	2.5	1	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	2	R/E.C/W	L.S
414	•	TB	1926	Jun	5	detached	•	11	6	2	3	1	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
415	•	TB	1926	Aug	20	detached	•	24	12	7	1.7	2	•	•	•	•	•	1	•	•	•	•	•	1	1	•	•	•	•	2	2	4	R.E.C/W	Si.Di.K
416	•	TB	1926	Aug	20	detached	•	28	16	8	2	2	•	•	•	1	•	•	•	•	1	•	•	•	1	•	•	•	1	2	2	6	R/E.C/W.A	Lb.L.K
417	•	TB	1926	Aug	20	detached	•	27	14	9	1.6	2	•	•	•	•	•	1	•	•	•	•	•	1	1	•	•	1	1	2	3	5	R.E.C/W	Si.Di.K
418	•	TB	1926	Sep	10	detached	•	20	12	5	2.4	2	•	•	1	•	•	•	•	•	•	•	•	1	1	•	•	•	•	2	1	4	R.E.C/W	P.Di.K
419	(seldt.)	TB	1926	Sep	17	detached	•	20	10	6	1.7	2	1	•	•	•	•	•	•	•	•	•	•	1	1	•	•	•	•	2	1	3	R.E.C/W	Dr.Di.K
420	•	TB	1926	Oct	1	detached	•	43	23	14	1.6	2	1	•	•	•	•	•	•	•	•	1	•	1	1	•	•	1	1	3	3	7	R.E.C/W.A	Dr.Di.K
421	•	TB	1926	Oct	22	detached	•	18	10	5	2	2	•	•	•	1	•	•	•	•	•	•	•	1	1	•	•	•	•	2	1	4	R.E.C/W	L.Di.K
422	•	TB	1926	Oct	22	semi-det.	•	13	6	4	1.5	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	2	R/E.C/W	L.S
423	•	TB	1926	Dec	24	detached	•	38	17	16	1.1	2	1	•	•	•	•	•	•	•	•	1	•	1	1	•	•	1	•	3	2	6	R.E.C/W.A	Dr.Di.K
424	•	TB	1926	Dec	24	detached	•	18	7	7	1	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	2	R.E.C/W	P.L.S
425	•	TB	1927	Jan	14	detached	•	29	13	11	1.2	2	•	•	•	1	•	•	•	•	•	1	•	1	1	•	•	•	•	3	1	5	R.E.C/W.A	L.Di.K
426	•	TB	1927	Jan	14	detached	•	26	12	12	1	2	•	•	•	1	•	•	•	•	•	•	•	1	1	•	•	•	•	2	1	5	R.E.C/W	L.Di.K
427	•	TB	1927	Apr	8	semi-det.	•	12	5	4	1.2	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	2	R/E.C/W	L.S
428	•	TB	1927	Apr	8	semi-det.	•	12	6	5	1.2	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
429	•	TB	1927	May	27	semi-det.	•	12	6	4	1.5	2	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	•	1	1	3	R.E/C	P.K
430	•	TB	1927	Jun	10	detached	•	19	12	6	2	2	•	1	•	•	•	•	1	•	•	•	•	1	1	1	•	•	•	3	2	4	R.E.C.W.A	Lo.Di.K
431	•	TB	1927	Jul	15	terraced	•	13	6	4	1.5	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	2	R.E/C.W	P.L
432	•	TB	1927	Jul	15	terraced	•	12	6	3	2	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	0	1	3	R/E/C.W	L
433	•	TB	1927	Aug	12	detached	•	43	21	14	1.5	3	1	•	•	1	•	•	•	•	•	1	•	1	1	•	•	1	1	4	3	6	R.E.C/W.2A+	Dr.Di.K
434	•	TB	1927	Sep	2	semi-det.	•	14	7	4	1.8	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	0	1	3	R/E/C.W	L
435	•	TB	1927	Sep	2	semi-det.	•	13	6	4	1.5	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	0	1	3	R/E/C.W	L
436	•	TB	1927	Sep	2	terraced	•	15	7	6	1.2	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L
437	•	TB	1927	Sep	2	terraced	•	13	6	5	1.2	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	0	1	3	R/E/C.W	L
438	•	TB	1927	Sep	2	terraced	•	13	7	3	2.3	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	0	1	3	R/E/C.W	L
439	•	TB	1927	Sep	2	semi-det.	•	11	5	4	1.2	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	0	1	2	R/E/C.W	L
440	•	TB	1927	Sep	2	terraced	•	15	7	6	1.2	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	P.L

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Key to functions (refer to table 2.8 for room labels):

R-reception; E-meals; C-cooking; W-washing up; A-alternative reception.

Note: A capital letter followed by (.) stands for one room designed for that function, i.e.R.E.C (there is one room for receiving, one for eating and one for cooking in the complex.
Two capital letters separated by (/) stand for one room in which those functions amalgamate, i.e.: E/C (one room is used for both eating and cooking in the complex.
2A+ stands for more than two alternative reception rooms found in the complex.

Key to journals:
TB- The Builder
BN- The Building News

Table 1. British Sample. Basic General Data

no. of plan	sub-sample	journal	data of publication: year	month	day	type of ground occup.	date of design/ constr.	no. of spaces: all	funct.	trans.	Fntc./ trans. ratio	no. of storeys	number of main day living rooms as labelled in the plans: drawing	lounge	parlour	living	liv/sit hall	sitting	morn./ breakf.	boudoir	library/ music	study/ den	smok/ billiard	dining	kitchen	scullery /wash	servery/ sv.lobby	srvts. hall/room	pantry	availability and distribution of functions into rooms: no. of rooms used for: Rec.	Serv.	Beds.	(see key)	family of room labels (see table 2.8)
441	•	TB	1927	Sep	2	terraced	•	12	6	5	1.2	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	0	1	3	R/E/C.W	L
442	•	TB	1927	Sep	9	detached	•	19	7	6	1.2	2	•	•	•	1	•	•	•	•	•	•	•	1	•	1	•	•	•	2	1	3	R.E.C/W	L.Di.S
443	•	TB	1927	Sep	9	detached	•	22	10	7	1.4	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	3	R.E.C.W	Dr.Di.K
444	•	TB	1927	Sep	16	detached	•	23	13	7	1.9	2	1	1	•	•	•	•	•	•	•	1	•	1	1	•	•	•	•	4	1	3	R.E.C/W.2A+	Dr.Di.K
445	•	TB	1927	Nov	25	detached	•	52	24	22	1.1	2	1	•	•	•	•	•	•	•	1	•	•	1	1	•	•	1	1	3	3	9	R.E.C/W.A	Dr.Di.K
446	•	TB	1927	Dec	16	detached	•	27	14	8	1.8	2	•	1	•	•	1	•	•	•	•	•	•	1	1	1	•	•	•	3	2	7	R.E.C.W.A	Lo.Di.K
447	•	TB	1927	Dec	30	detached	•	23	10	7	1.4	2	•	•	•	•	•	1	•	•	•	•	•	1	1	•	•	•	•	2	1	5	R.E.C/W	Si.Di.K
448	•	TB	1927	Dec	30	detached	•	16	8	5	1.6	2	•	•	•	1	•	1	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R.E/C.W	Si.L
449	(seldt.)	TB	1927	Dec	30	detached	•	16	9	5	1.8	2	1	•	•	•	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	3	R.E.C.W	Dr.Di.K
450	•	TB	1927	Dec	30	detached	•	45	20	17	1.2	3	1	•	•	•	1	•	•	•	•	1	•	1	1	1	•	1	•	4	3	6	R.E.C.W.2A+	Dr.Di.K
451	•	TB	1928	Jan	20	terraced	•	14	8	4	2	2	•	•	1	•	•	•	•	•	•	•	•	•	1	1	•	•	•	1	2	3	R.E/C.W	P.K
452	•	TB	1928	Jan	27	detached	•	28	19	7	2.7	2	•	1	•	•	•	1	•	•	•	•	•	1	1	1	•	•	1	3	3	4	R.E.C.W.A	Si.Di.K
453	•	TB	1928	Feb	24	detached	•	26	12	9	1.3	2	•	•	•	1	•	•	•	•	•	•	•	1	1	•	•	•	•	2	1	4	R.E.C/W	L.Di.K
454	•	TB	1928	Apr	13	detached	•	26	11	7	1.6	2	•	•	•	1	•	•	•	•	•	1	•	•	1	1	•	•	•	2	2	3	R/E.C.W.A	L.K
455	•	TB	1928	Apr	20	semi-det.	•	16	9	4	2.2	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	4	R.E/C.W	P.L
456	•	TB	1928	Apr	27	semi-det.	•	18	8	6	1.3	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
457	(seldt.)	TB	1928	Apr	27	terraced	•	16	8	6	1.3	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
458	•	TB	1928	Jul	20	terraced	•	54	22	18	1.2	4	1	•	•	•	•	•	•	•	•	1	•	1	1	•	•	1	1	3	3	7	R.E.C/W.A	Dr.Di.K
459	•	TB	1928	Aug	3	detached	•	27	13	9	1.4	2	•	•	•	1	•	•	•	•	•	•	•	1	1	•	•	•	1	2	2	5	R.E.C/W	L.Di.K
460	•	TB	1928	Aug	10	detached	1927	37	18	14	1.3	2	1	•	•	•	•	•	•	•	•	1	•	1	1	•	•	1	1	3	3	6	R.E.C/W.A	Dr.Di.K
461	•	TB	1928	Nov	9	detached	•	43	19	11	1.7	2	•	•	•	1	1	•	•	•	•	•	•	1	1	•	•	1	1	3	3	6	R.E.C/W.A	L.Di.K
462	•	TB	1928	Nov	16	detached	•	20	9	6	1.5	2	•	•	•	•	•	1	•	•	•	•	•	1	1	•	•	•	•	2	1	3	R.E.C/W	Si.Di.K
463	•	TB	1928	Dec	21	detached	•	21	12	5	2.4	2	•	•	•	1	•	•	•	•	•	•	•	1	1	1	•	•	•	2	2	4	R.E.C/W	L.Di.K
464	•	TB	1928	Dec	21	detached	•	19	10	5	2	2	•	•	•	1	•	•	•	•	•	•	•	1	1	•	•	•	•	2	1	4	R.E.C/W	L.Di.K
465	•	TB	1928	Dec	21	detached	•	23	12	8	1.5	2	•	•	•	•	•	1	•	•	•	•	•	1	1	•	•	•	•	2	1	4	R.E.C/W	Si.Di.K
466	•	TB	1929	Jan	11	detached	•	24	11	8	1.4	2	•	•	1	1	•	•	•	•	•	•	•	•	1	•	1	•	•	2	2	4	R.E.C/W	P.L.K.
467	•	TB	1929	Jan	11	detached	•	25	10	11	.9	2	•	•	•	1	•	•	•	•	•	•	•	1	1	•	•	•	•	2	1	4	R.E.C/W	L.Di.K
468	•	TB	1929	Jan	11	detached	•	30	14	12	1.2	2	•	•	•	1	•	•	•	•	•	1	•	1	1	1	•	•	•	3	2	5	R.E.C.W.A	L.Di.K
469	•	TB	1929	Feb	15	detached	•	13	7	5	1.4	2	•	•	•	1	•	•	•	•	•	•	•	1	1	•	•	•	•	2	1	3	R.E.C/W	L.Di.K
470	(seldt.)	TB	1929	Feb	15	detached	•	17	8	7	1.1	2	•	•	•	1	•	•	•	•	•	•	•	1	1	•	•	•	•	2	1	3	R.E.C/W	L.Di.K
471	•	TB	1929	Feb	22	detached	•	48	22	16	1.4	3	•	•	•	1	1	•	•	•	•	1	•	1	1	•	•	1	1	4	3	8	R.E.C/W.2A+	L.Di.K
472	•	TB	1929	Mar	22	detached	•	24	12	8	1.5	3	•	•	•	1	•	•	•	•	•	•	•	•	1	•	•	•	•	1	1	6	R/E.C/W	L.K
473	•	TB	1929	Mar	29	detached	•	20	10	7	1.4	2	1	•	•	•	•	•	•	•	•	•	•	1	1	•	•	•	•	2	1	4	R.E.C/W	Dr.Di.K
474	•	TB	1929	Apr	19	detached	•	26	11	10	1.1	2	•	•	•	•	1	1	•	•	•	•	•	•	1	•	•	1	•	2	2	5	R.E.C/W	H.Si.K
475	•	TB	1929	Aug	9	terraced	•	15	7	5	1.4	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
476	•	TB	1929	Aug	9	terraced	•	15	7	6	1.2	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
477	•	TB	1929	Aug	30	detached	•	41	21	14	1.5	3	1	•	•	•	•	•	1	•	•	•	•	1	1	1	1	1	•	3	4	7	R.E.C.W.A	Dr.Di.K
478	•	TB	1929	Nov	15	detached	•	31	17	11	1.5	3	1	•	•	•	•	1	1	•	•	•	•	1	1	1	•	•	•	4	2	7	R.E.C.W.2A+	Dr.Di.K
479	•	TB	1929	Dec	27	semi-det.	•	15	8	4	2	2	1	•	•	•	•	•	•	•	•	•	•	1	1	•	•	•	•	2	1	3	R.E.C/W	Dr.Di.K
480	•	TB	1930	Jan	10	detached	•	25	12	9	1.3	2	•	1	•	•	•	•	•	•	•	1	•	1	1	1	•	•	•	3	2	5	R.E.C.W.A	Lo.Di.K
481	(seldt.)	TB	1930	Feb	7	semi-det.	•	14	6	5	1.2	2	•	•	•	1	•	•	•	•	•	•	•	•	•	1	•	•	•	1	1	3	R/E.C/W	L.S
482	•	TB	1930	Feb	28	detached	•	33	15	10	1.5	2	•	1	•	•	•	•	•	•	•	•	•	1	1	•	1	1	•	2	3	6	R.E.C/W	Lo.Di.K
483	•	TB	1930	Mar	14	detached	•	48	21	20	1	2	1	•	•	•	•	•	•	•	•	1	•	1	1	•	•	1	1	3	3	7	R.E.C/W.A	Dr.Di.K
484	•	TB	1930	Mar	14	detached	•	22	11	7	1.6	2	•	1	•	•	•	•	•	•	•	1	•	1	1	•	•	•	•	3	1	4	R.E.C/W.A	Lo.Di.K
485	•	TB	1930	Mar	21	detached	•	25	12	9	1.3	2	•	•	•	•	•	1	•	•	•	•	•	1	1	•	•	•	•	2	1	4	R.E.C/W	Si.Di.K
486	•	TB	1930	May	16	detached	•	25	13	8	1.6	2	•	•	•	•	1	2	•	•	•	•	•	•	1	•	•	•	•	3	1	4	R.E.C/W.A	Si.Si.K
487	•	TB	1930	May	30	detached	•	26	12	10	1.2	2	•	•	•	•	•	1	•	•	•	•	•	1	1	•	•	•	1	2	2	5	R.E.C/W	Si.Di.K
488	•	TB	1930	Aug	22	terraced	•	15	7	5	1.4	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
489	•	TB	1930	Aug	22	terraced	•	14	7	4	1.8	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	P.L.S
490	•	TB	1930	Aug	29	detached	•	26	12	10	1.2	2	•	1	•	•	•	•	1	•	•	•	•	1	1	•	•	•	•	3	1	4	R.E.C/W.A	Lo.Di.K
491	•	TB	1930	Oct	10	semi-det.	•	17	8	6	1.3	2	•	•	•	1	•	1	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	Si.L.S
492	•	TB	1930	Oct	10	semi-det.	•	19	9	7	1.3	2	•	•	1	1	•	•	•	•	•	•	•	•	•	1	•	•	•	2	1	4	R.E.C/W	P.L.S
493	•	TB	1930	Oct	10	semi-det.	•	14	6	4	1.5	2	•	•	•	1	•	•	•	•	•	•	•	•	1	•	•	•	•	1	1	3	R/E.C/W	L.K
494	•	TB	1930	Oct	17	detached	•	20	11	6	1.8	2	1	•	•	•	•	•	•	•	•	1	•	1	1	•	•	•	1	3	2	3	R.E.C/W.A	Dr.Di.K
495	•	TB	1930	Oct	31	detached	•	32	18	8	2.2	2	•	1	•	•	•	1	•	•	•	•	•	1	1	1	•	1	1	3	4	5	R.E.C.W.A	Si.Di.K

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Key to functions (refer to table 2.8 for room labels):

R- reception; E- meals; C-cooking; W-washing up; A-alternative reception.

Note: A capital letter followed by (.) stands for one room designed for that function, i.e.R.E.C (there is one room for receiving, one for eating and one for cooking in the complex.
Two capital letters separated by (/) stand for one room in which those functions amalgamate, i.e.: E/C (one room is used for both eating and cooking in the complex.
2A+ stands for more than two alternative reception rooms found in the complex.

Key to journals:
TB- The Builder
BN- The Building News

Table 1. British Sample. Basic General Data

no. of plan	sub-sample	journal	data of publication: year	month	day	type of ground occup.	date of design/ constr.	no. of spaces: all	funct.	trans.	Fntc./ trans. ratio	no. of storeys	number of main day living rooms as labelled in the plans: drawing	lounge	parlour	living	liv/sit hall	sitting	morn./ breakf.	boudoir	library/ music	study/ den	smok/ billiard	dining	kitchen	scullery /wash	servery/ sv.lobby	srvts. hall/room	pantry	availability and distribution of functions into rooms: no. of rooms used for: Rec.	Serv.	Beds.	(see key)	family of room labels (see table 2.8)
496	•	TB	1930	Nov	7	detached	•	22	8	5	1.6	2	•	•	•	1	•	1	•	•	•	•	•	•	•	1	•	•	•	2	1	3	R.E.C/W	Si.L.S
497	•	TB	1930	Nov	7	detached	•	34	20	10	2	3	1	•	•	•	•	1	•	•	•	•	1	1	1	1	•	•	1	4	3	7	R.E.C.W.2A+	Dr.Di.K
498	•	TB	1930	Nov	7	detached	•	28	13	10	1.3	2	•	•	•	•	•	•	•	•	1	•	•	1	1	•	•	1	•	2	2	4	R.E.C/W	M.Di.K
499	•	TB	1930	Nov	21	detached	•	27	12	8	1.5	2	•	•	1	1	•	•	•	•	•	•	•	•	1	1	•	•	1	2	3	4	R.E.C.W	P.L.K.
500	•	TB	1930	Dec	19	detached	•	52	27	15	1.8	3	1	•	•	•	1	•	•	•	1	•	•	1	1	1	1	•	1	4	4	5	R.E.C.W.2A+	Dr.Di.K

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Key to functions (refer to table 2.8 for room labels):

R- reception; E- meals; C-cooking; W-washing up; A-alternative reception.

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Two capital letters separated by (/) stand for one room in which those functions amalgamate, i.e.: E/C (one room is used for both eating and cooking in the complex.
2A+ stands for more than two alternative reception rooms found in the complex.

Key to journals:
TB- The Builder
BN- The Building News

CHAPTER 2

Figure 2. Correlation between the total number of interior spaces and the number of main living rooms

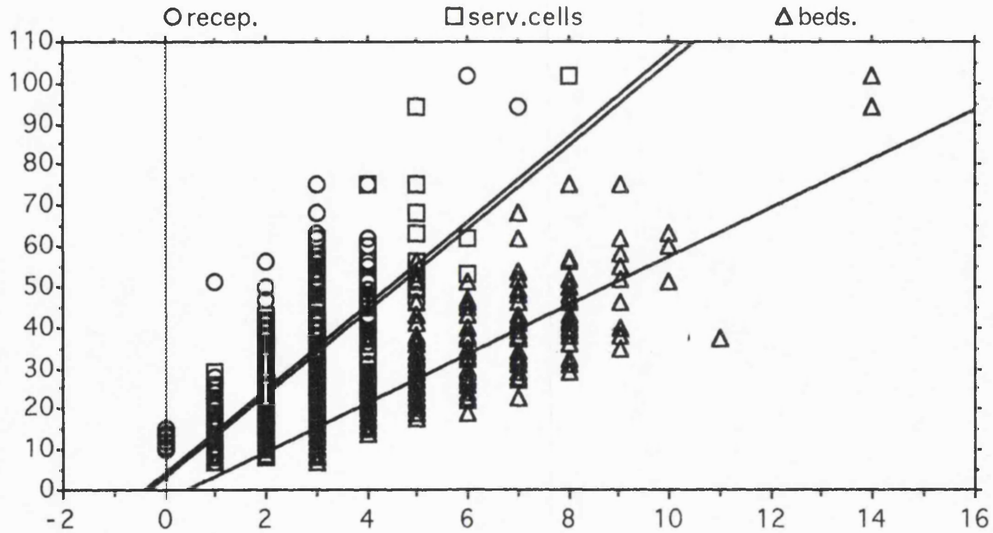
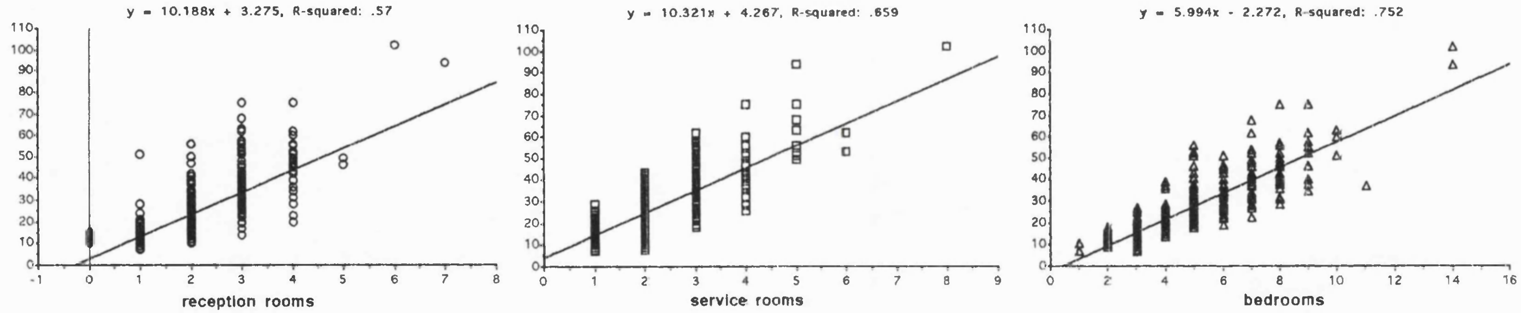
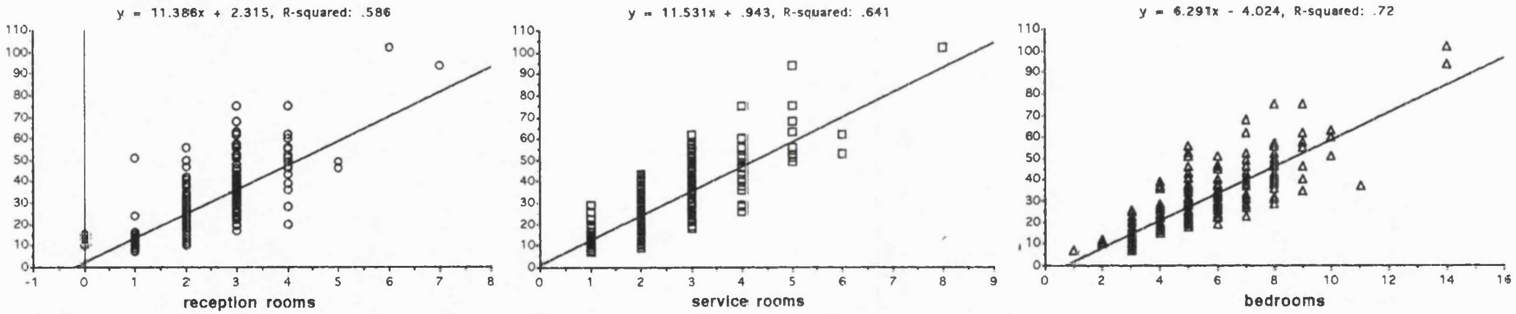


Figure 2.1 Correlation between the total number of interior spaces and the number of main living rooms across time

a) All plans



b) Plans published between 1843 and 1913



c) Plans published between 1914 and 1930

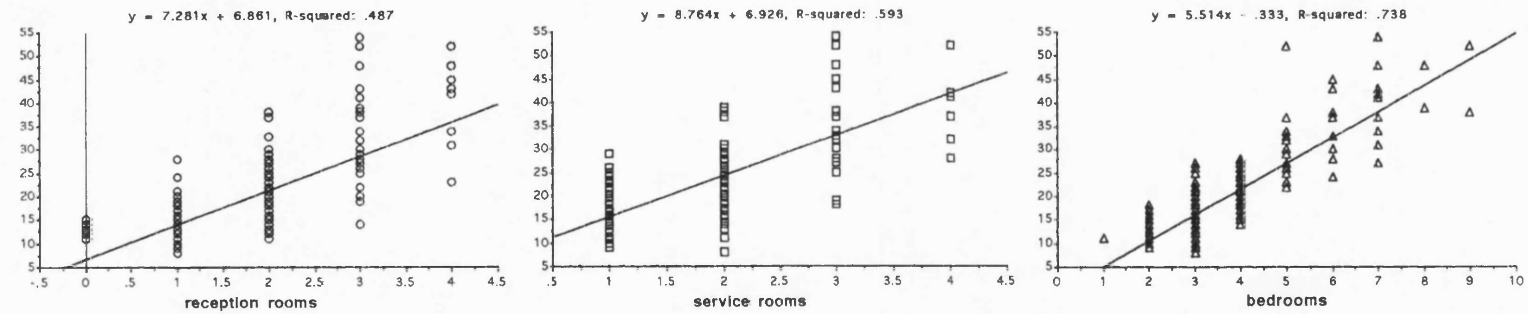
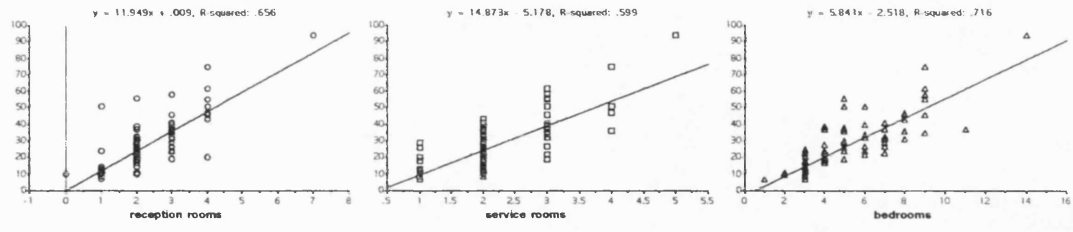
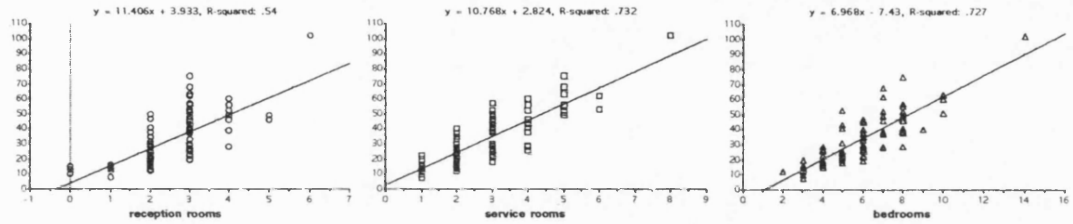


Figure 2.2. Correlation between the number of main living rooms and the minimal living spaces at successive time periods.

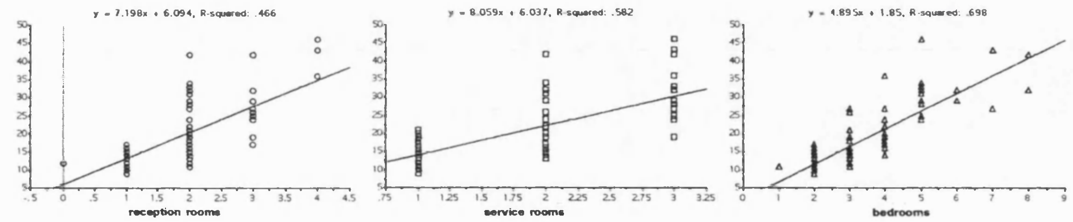
a) Plans nos. 1 to 100 (1843-1893)



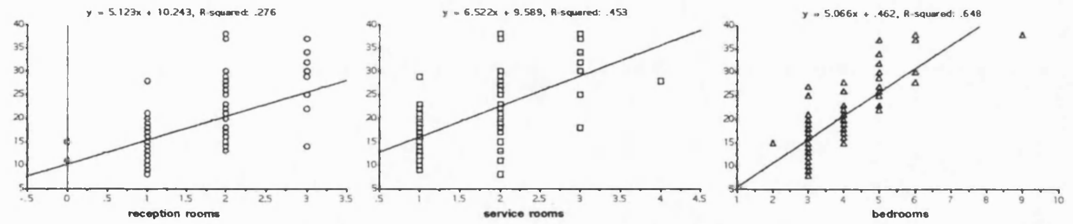
b) Plans nos. 101 to 200 (1894-1909)



c) Plans nos. 201 to 300 (1909-1919)



d) Plans nos. 301 to 400 (1919-1925)



e) Plans nos. 401 to 500 (1925-1930)

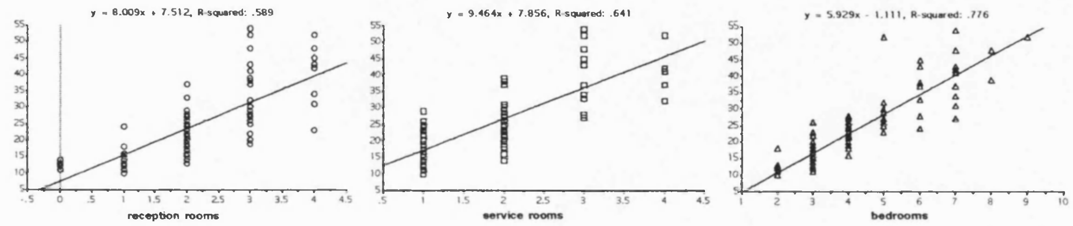
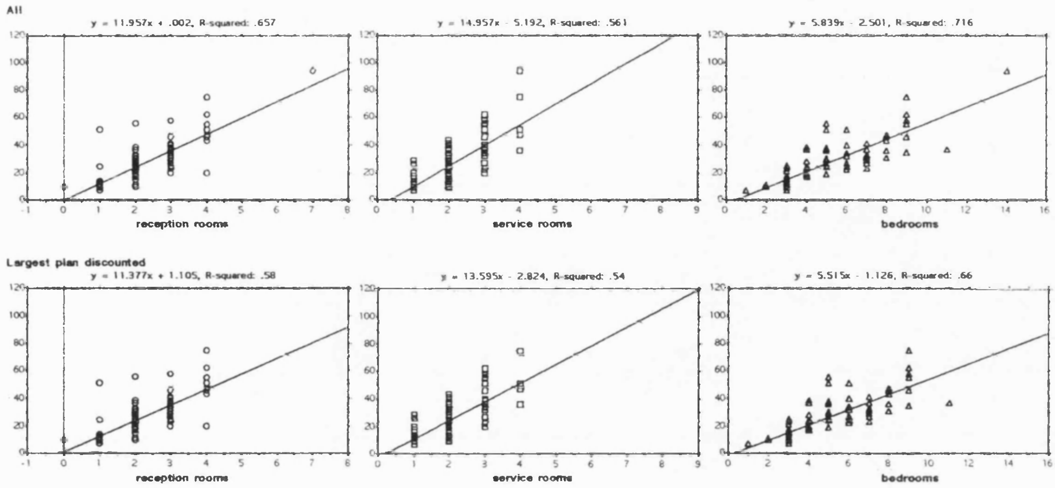
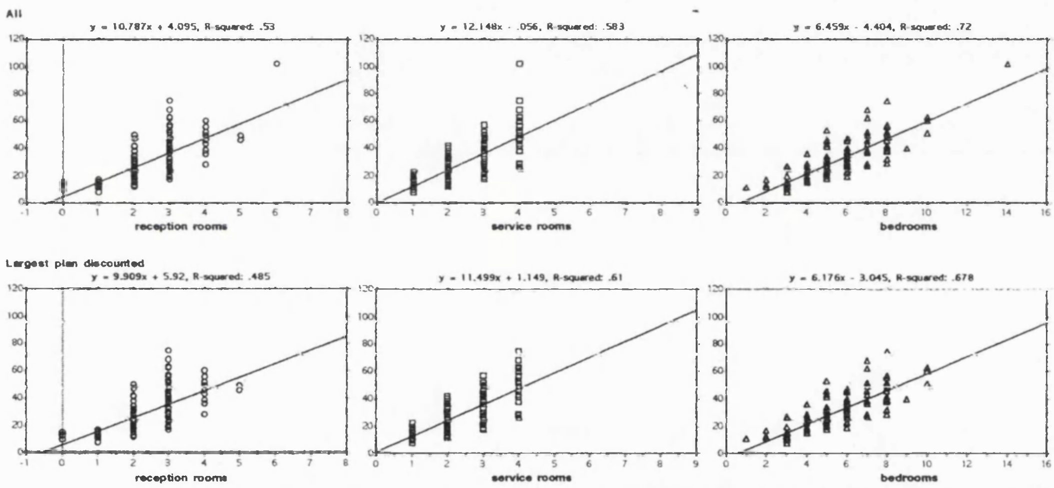


Figure 2.3. Correlation between the number of main living rooms and the minimal living spaces at successive time periods

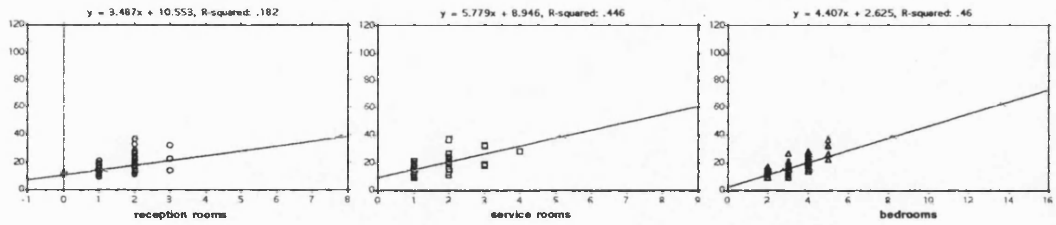
a) Plans published between 1843 and 1893 (100 cases)



b) Plans published between 1894 and 1914 (144 cases)



c) Plans published between 1915 and 1922 (108 cases)



d) Plans published between 1923 and 1930 (76 cases)

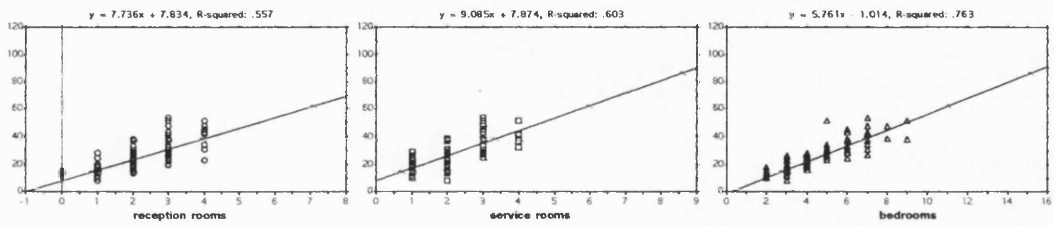


Table 2. Basic data for all plans

ALL PLANS	cases	number of interior spaces			number of function spaces			number of transition space		
		mim.	max.	mean	mim.	max.	mean	mim.	max.	mean
	500	7	102	23.8	3	44	11.3	1	44	8.5

ALL PLANS	number of storeys			occupation in the plot		
	mim.	max.	mean	detached	semi-det.	terraced
	1	6	2.4	228	125	147

ALL PLANS	number of recep. rooms			number of service rooms			number of bedrooms		
	mim.	max.	mean	mim.	max.	mean	mim.	max.	mean
	0	7	2	1	8	1.9	1	14	4.3

Table 2.1. British plans. Availability of main function rooms across the sample

ALL PLANS	number of reception rooms							
	none	one	two	three	four	five	six	seven
cases	16	133	218	100	29	2	1	1

ALL PLANS	number of service rooms							
	one	two	three	four	five	six	seven	eight
cases	221	161	84	23	8	2	0	1

ALL PLANS	number of bedrooms													
	one	two	three	four	five	six	seven	eight	nine	ten	eleven	twelve	thirteen	fourteen
cases	2	38	184	91	68	46	32	24	9	3	1	0	0	2

Table 2.2. British plans. Basic data across size clusters according to the number of main function rooms:

number of RECEPTION rooms	cases	number of spaces: total			function	transit.	funct./trans.	number of storeys			occupation in the plot		
		min.	max.	mean	mean	mean	mean	min.	max.	mean	detach.	semi-d.	terraced
Three or more	133	14	102	38.2	17.9	14.2	1.5	1	6	3	101	15	17
Two	218	10	56	21.8	10.6	7.6	1.5	2	4	2.3	102	53	63
One or none	149	7	51	13.9	6.6	4.7	1.6	1	4	2	25	57	67
SERVICE rooms													
Three or more	118	18	102	40.1	18.7	15.1	1.4	2	6	3.1	81	18	19
Two	161	8	43	23.5	11.4	8.4	1.5	1	5	2.4	88	42	31
One	221	7	29	15.3	7.4	5	1.6	1	4	2	59	65	97
BEDROOMS													
Six or more	117	19	102	40.5	18.6	15.4	1.3	2	6	3.2	75	24	18
Four or five	159	14	56	24.7	12.1	8.7	1.6	2	5	2.4	103	30	26
One to three	224	7	27	14.5	7	4.7	1.6	1	3	2	50	71	103
	500	7	102	23.8	11.3	8.5	1.5	1	6	2.4	228	125	147

Table 2.3. British plans. Basic data across size clusters and type of ground occupation

a) Detached houses

number of: RECEPTION rooms	cases	number of spaces: total mim.	max.	mean	function mean	funct./tr. mean	storeys mean
Three or more	101	14	102	35.8	17.2	1.552	2.6
Two	102	13	56	23.9	11.8	1.577	2.2
One or none	25	7	51	16.5	7.7	1.623	2
SERVICE rooms							
Three or more	81	18	102	38.4	18.4	1.552	2.6
Two	88	12	41	25.4	12.5	1.562	2.4
One	59	7	29	18.9	9.2	1.61	2
BEDROOMS							
Six or more	75	19	102	39.9	18.7	1.404	2.7
Four or five	103	16	56	25.4	12.7	1.631	2.3
One to three	50	7	27	17	8.4	1.698	1.9
	228	7	102	28.3	13.7	1.571	2.4

b) Semi-detached houses

number of: RECEPTION rooms	cases	number of spaces: total mim.	max.	mean	function mean	total/funct. mean	storeys mean
Three or more	15	17	62	38.1	18.3	1.506	3.3
Two	53	10	47	22.1	10.5	1.376	2.5
One or none	57	8	21	13.7	6.4	1.604	2
SERVICE rooms							
Three or more	18	18	62	36.9	17.4	1.349	3.2
Two	42	8	43	22.3	10.7	1.524	2.5
One	65	8	21	14.2	6.7	1.518	2
BEDROOMS							
Six or more	24	22	62	33.7	15.9	1.311	3.2
Four or five	30	15	53	23.8	11.6	1.481	2.5
One to three	71	8	25	14.1	6.6	1.564	2
	125	8	62	20.2	9.6	1.496	2.3

c) Terraced houses

number of: RECEPTION rooms	cases	number of spaces: total mim.	max.	mean	function mean	funct./tr. mean	storeys mean
Three or more	17	27	75	52.3	21.7	1.02	5.1
Two	63	11	50	18.3	8.7	1.523	2.2
One or none	67	7	17	13.1	6.4	1.51	2
SERVICE rooms							
Three or more	19	24	75	50.5	21.2	1.062	4.7
Two	31	9	42	19.7	9.2	1.339	2.5
One	97	7	20	13.9	6.8	1.575	2
BEDROOMS							
Six or more	18	27	75	51.9	21.9	1.091	4.9
Four or five	26	14	46	22.7	10.4	1.353	2.5
One to three	103	7	18	13.5	6.6	1.55	2
	147	7	75	19.9	9.1	1.459	2.5

Table 2.4. British plans. Basic data across size clusters and time

a) All plans

ALL HOUSES published between:	cases	number of : total spaces			fuction	transit.	fun/trans.	storeys	situation in the plot		
		mim.	max.	mean	mean	mean	mean	mean	detached	semi-det.	terraced
1843-1913	233	7	102	28.4	13.2	10.8	1.4	2.8	107	72	54
1914-1930	267	8	54	19.8	9.7	6.4	1.6	2.1	121	53	93
	500	7	102	23.8	11.3	8.5	1.5	2.4	228	125	147

b) Plans published between 1843 and 1913

number of RECEPTION rooms	cases	number of: total spaces			funct.	trans.	fn./tr.	storeys
		mim.	max.	mean	mean	mean	mean	mean
Three or more	93	17	102	40.3	18.4	15.6	1.4	3.3
Two	89	10	56	24.8	11.7	9.3	1.4	2.6
One or none	51	7	51	13.2	6.3	4.7	1.4	2.1
SERVICE								
Three or more	87	18	102	41.6	19	16.4	1.4	3.3
Two	105	9	43	23.4	11.1	8.6	1.4	2.6
One	41	7	29	13.5	6.3	4.7	1.4	2.1
BEDROOMS								
Six or more	90	19	102	41.3	18.7	16.2	1.3	3.4
Four or five	81	15	56	25.9	12.3	9.6	1.5	2.6
One to three	62	7	26	13.2	6.4	4.7	1.5	2
1843-1913	233	7	102	28.4	13.2	10.8	1.4	2.8

c) Plans published between 1914 and 1930

number of RECEPTION rooms	cases	number of: total spaces			funct.	trans.	fn./tr.	storeys
		mim.	max.	mean	mean	mean	mean	mean
Three or more	40	14	54	33.2	16.6	10.8	1.6	2.3
Two	129	11	38	19.8	9.8	6.4	1.6	2.1
One or none	98	8	28	14.2	6.8	4.6	1.6	1.9
SERVICE								
Three or more	31	18	54	35.9	17.8	11.5	1.6	2.3
Two	56	8	39	23.7	11.9	7.8	1.7	2.1
One	180	9	29	15.8	7.6	5.1	1.6	2
BEDROOMS								
Six or more	27	24	54	37.8	18.5	12.9	1.5	2.5
Four or five	78	14	52	23.5	11.8	7.7	1.6	2.1
One to three	162	8	27	15	7.2	4.8	1.6	1.9
1914-1930	267	8	54	19.8	9.7	6.4	1.6	2.1

a) Plans published between1843 and 1893

Six or more bedrooms

From: (≥)	To: (<)	Count:	Percent:	
0	1	0	0	
1	2	0	0	
2	3	9	27.273	
3	4	16	48.485	- Mode
4	5	7	21.212	
5	6	0	0	
6	7	0	0	
7	8	1	3.03	

Plans with 3 or more reception rooms: 24 (72.7%)

From: (≥)	To: (<)	Count:	Percent:
0	1	0	0
1	2	0	0
2	3	15	45.455
3	4	15	45.455
4	5	2	6.061
5	6	1	3.03

Plans with 2 or more service rooms: 33 (100%)

Four to five bedrooms

From: (≥)	To: (<)	Count:	Percent:	
0	1	0	0	
1	2	2	7.143	
2	3	19	67.857	- Mode
3	4	6	21.429	
4	5	1	3.571	

Plans with 2 or 3 reception rooms: 25 (92.9%)

From: (≥)	To: (<)	Count:	Percent:	
0	1	0	0	
1	2	4	14.286	
2	3	19	67.857	- Mode
3	4	3	10.714	
4	5	2	7.143	

Plans with 2 or 3 service rooms: 22 (78.6%)

One to three bedrooms

From: (≥)	To: (<)	Count:	Percent:	
0	1	1	2.564	
1	2	27	69.231	- Mode
2	3	10	25.641	
3	4	1	2.564	

Plans with none to 2 reception rooms: 38 (97.4%)

From: (≥)	To: (<)	Count:	Percent:	
0	1	0	0	
1	2	19	48.718	
2	3	20	51.282	- Mode

Plans with 1 or 2 service rooms: 38 (100%)

a) Plans published between1894 and 1914

Six or more bedrooms

From: (≥)	To: (<)	Count:	Percent:	
0	1	0	0	
1	2	0	0	
2	3	16	27.586	
3	4	28	48.276	- Mode
4	5	11	18.966	
5	6	2	3.448	
6	7	1	1.724	

Plans with 3 or more reception rooms: 42 (72.4%)

From: (≥)	To: (<)	Count:	Percent:	
0	1	0	0	
1	2	1	1.724	
2	3	11	18.966	
3	4	26	44.828	- Mode
4	5	11	18.966	
5	6	7	12.069	
6	7	1	1.724	
7	8	0	0	
8	9	1	1.724	

Plans with 3 or more service rooms: 46 (79.3%)

Four to five bedrooms

From: (≥)	To: (<)	Count:	Percent:	
0	1	0	0	
1	2	3	5.455	
2	3	34	61.818	- Mode
3	4	16	29.091	
4	5	2	3.636	

Plans with 2 or 3 reception rooms: 50 (90.9%)

From: (≥)	To: (<)	Count:	Percent:	
0	1	0	0	
1	2	2	3.636	
2	3	34	61.818	- Mode
3	4	16	29.091	
4	5	2	3.636	
5	6	0	0	
6	7	1	1.818	

Plans with 2 or 3 service rooms: 50 (90.9%)

One to three bedrooms

From: (≥)	To: (<)	Count:	Percent:	
0	1	4	12.903	
1	2	19	61.29	- Mode
2	3	5	16.129	
3	4	3	9.677	

Plans with none to 2 reception rooms: 28 (90.3%)

From: (≥)	To: (<)	Count:	Percent:	
0	1	0	0	
1	2	22	70.968	- Mode
2	3	8	25.806	
3	4	1	3.226	

Plans with 1 or 2 service rooms: 30 (96.8%)

c) Plans published between1915 and 1922

Six or more bedrooms
none found

Four to five bedrooms

From: (≥)	To: (<)	Count:	Percent:	
0	1	0	0	
1	2	0	0	
2	3	19	90.476	- Mode
3	4	2	9.524	

Plans with 2 to 3 **reception** rooms: 21 (100%)

From: (≥)	To: (<)	Count:	Percent:	
0	1	0	0	
1	2	9	42.857	- Mode
2	3	8	38.095	
3	4	3	14.286	
4	5	1	4.762	

Plans with 1 to 3 **service** rooms: 20 (95.2%)

One to three bedrooms

From: (≥)	To: (<)	Count:	Percent:	
0	1	2	2.299	
1	2	46	52.874	- Mode
2	3	38	43.678	
3	4	1	1.149	

Plans with none to 2 **reception** rooms: 86 (98.8%)

From: (≥)	To: (<)	Count:	Percent:	
0	1	0	0	
1	2	81	93.103	- Mode
2	3	5	5.747	
3	4	1	1.149	

Plans with 1 **service** room: 81 (93.1%)

d) Plans published between1923 and 1930

Six or more bedrooms

From: (≥)	To: (<)	Count:	Percent:	
0	1	0	0	
1	2	1	3.846	
2	3	7	26.923	
3	4	12	46.154	- Mode
4	5	6	23.077	

Plans with 3 or more **reception** rooms: 18 (69.2%)

From: (≥)	To: (<)	Count:	Percent:	
0	1	0	0	
1	2	1	3.846	
2	3	9	34.615	
3	4	13	50	- Mode
4	5	3	11.538	

Plans with 2 or more **service** rooms: 25 (96.2%)

Four to five bedrooms

From: (≥)	To: (<)	Count:	Percent:	
0	1	0	0	
1	2	4	7.273	
2	3	36	65.455	- Mode
3	4	14	25.455	
4	5	1	1.818	

Plans with 2 or 3 **reception** rooms: 50(90.9%)

From: (≥)	To: (<)	Count:	Percent:	
0	1	0	0	
1	2	25	45.455	- Mode
2	3	23	41.818	
3	4	5	9.091	
4	5	2	3.636	

Plans with 1 or 2 **service** rooms: 48 (87.3%)

One to three bedrooms

From: (≥)	To: (<)	Count:	Percent:	
0	1	9	13.433	
1	2	31	46.269	- Mode
2	3	25	37.313	
3	4	1	1.493	
4	5	1	1.493	

Plans with none to 2 **reception** rooms: 65(97%)

From: (≥)	To: (<)	Count:	Percent:	
0	1	0	0	
1	2	57	85.075	- Mode
2	3	9	13.433	
3	4	1	1.493	

Plans with 1 **service** room: 57 (85.1%)

Table 2.7. Frequency distribution of the availability of rooms for main day function

Element:	Count:	Percent:	
R.E.C	346	69.2	-Mode
R/E.C	59	11.8	
R.E/C	79	15.8	
R/E/C	16	3.2	

Table 2.8. Families of main living rooms

a) **All**

Af.Mg.K	1	L.K	25	P.L.K	8
Di.K	3	L.L.K	2	P.L.S	52
Dr.Di.K	181	L.S	38	P.P.K	7
Dr.L.K	5	L.W	1	R.R.K	1
Dr.Si.K	1	Lb.L.K	2	Sa.Di.K	1
H.Di.K	2	Lo.Di.K	7	Si.Di.K	23
H.Dr.K	1	M.Di.K	3	Si.K	2
H.L.K	2	P	1	Si.L	2
H.Si.K	2	P.Di.K	6	Si.L.S	4
L	15	P.Di.S	2	Si.Si.K	2
L.Di.K	30	P.K	22		
L.Di.S	2	P.L	42		

Key to labels

Af.	Afternoon room	Di.	Dining room	Dr.	Drawing room
H.	(living/sitting) Hall	K.	Kitchen	L.	Living room
Lb.	Library	Lo.	Lounge	M.	Music room
Mg.	Morning room	P.	Parlour	R.	Reception room
S.	Scullery	Sa.	Salon	Si.	Sitting room
W.	Washing room				

b) Most frequent families of main living rooms

Main label categories	cases	%
Dr.Di.K	181	36.2
P.L.S	52	10.4
P.L.	42	8.4
L.S	38	7.6
L.Di.K	30	6
L.K	25	5
Si.Di.K	23	4.6
P.K	22	4.4
L	15	3
	428	85.6

Table 2.9. Main label categories and size

		number of spaces			number of storeys		
Main labels	cases	mn.	mx.	mean	mn.	mx.	mean
Dr.Di.K	181	15	102	34.3	2	6	2.9
P.L.S	52	10	20	14.9	2	2	2
P.L	42	9	21	14.7	1	2	2
L.S	38	7	18	12.5	1	2	1.9
L.Di.K	30	13	48	23	1	3	2.1
L.K	25	7	26	13.8	1	3	2
Si.Di.K	23	17	32	24.2	2	3	2.3
P.K	22	10	19	13.5	2	3	2
L	15	10	15	12.7	1	2	1.9

Table 2.10. Plans where the space designed mainly for eating is labelled as:

		number of spaces			st'eys	reception rooms			service rooms			bedrooms		
	cases	mn.	mx.	mean	mean	mn.	mx.	mean	mn.	mx.	mean	mn.	mx.	mean
Dining room	260	13	102	31.4	2.7	1	7	2.6	1	8	2.4	3	14	5.5
Sitting room	5	17	26	22.2	2.2	2	3	2.2	1	2	1.6	4	5	4.4
Living room	74	10	47	17.6	2.1	2	3	2	1	4	1.3	2	9	3.3

Table 2.11. Frequency distribution of main families of living room across size (restricted by the number of bedrooms) and time

a) Plans published between 1843 and 1893

Six or more bedrooms

Element:	Count:	Percent:	
Dr.Di.K	32	96.97	- Mode
P.L.S.	0	0	
L.S.	0	0	
Si.Di.K.	0	0	
L.Di.K.	0	0	
P.K.	0	0	
L.K.	0	0	
other	1	3.03	

Other: Dr.L.K-1

Four to 5 bedrooms

Element:	Count:	Percent:	
Dr.Di.K	15	53.571	- Mode
P.L.S.	0	0	
L.S.	0	0	
Si.Di.K.	1	3.571	
L.Di.K.	0	0	
P.K.	0	0	
L.K.	1	3.571	
other	11	39.286	

Other: PPK-5; Dr.L.K-1; Si.Si.K-1; P.L.K-1; P.P.K-1; H.Di.K-1; H.Si.K-1

One to 3 bedrooms

Element:	Count:	Percent:	
Dr.Di.K	5	12.821	
P.L.S.	1	2.564	
L.S.	8	20.513	
Si.Di.K.	1	2.564	
L.Di.K.	0	0	
P.K.	8	20.513	
L.K.	10	25.641	- Mode
other	6	15.385	

Other: L.L.K-2; P.P.K-2; L.W-1; P.S-1

b) Plans published between 1894 and 1914

Six or more bedrooms

Element:	Count:	Percent:	
Dr.Di.K	53	91.379	- Mode
P.L.S.	0	0	
L.S.	0	0	
Si.Di.K.	1	1.724	
L.Di.K.	0	0	
P.K.	0	0	
L.K.	0	0	
other	4	6.897	

Other: Dr.L.K-1; P.Di.K-1; H.Di.K-1; Sa.Di.K-1

Four to 5 bedrooms

Element:	Count:	Percent:	
Dr.Di.K	33	60	- Mode
P.L.S.	0	0	
L.S.	0	0	
Si.Di.K.	6	10.909	
L.Di.K.	1	1.818	
P.K.	2	3.636	
L.K.	0	0	
other	13	23.636	

Other: P.Di.K-3; P.L.K-3; Dr.L.K-2; Dr.Si.K-1; H.Dr.K-1; R.R.K-1; Si.K-1; Si.K.S-1

One to 3 bedrooms

Element:	Count:	Percent:	
Dr.Di.K	2	6.452	
P.L.S.	2	6.452	
L.S.	6	19.355	- Mode
Si.Di.K.	0	0	
L.Di.K.	0	0	
P.K.	5	16.129	
L.K.	3	9.677	
L	4	12.903	
P.L.	5	16.129	
other	4	12.903	

Other: P.L.K-2; Si.L.S-1; M.Di.K-1

Table 2.11. Frequency distribution of main families of living room across size (restricted by the number of bedrooms) and time (cont.)

c) Plans published between 1915 and 1922

Six or more bedrooms

(none found)

Four to 5 bedrooms

Element:	Count:	Percent:	
Dr.Di.K	7	33.333	
P.L.S.	8	38.095	- Mode
L.S.	0	0	
Si.Di.K.	3	14.286	
L.Di.K.	0	0	
P.K.	0	0	
L.K.	1	4.762	
other	2	9.524	

Other: P.Di.K-1; Lo.Di.K-1

One to 3 bedrooms

Element:	Count:	Percent:	
Dr.Di.K	0	0	
P.L.S.	31	35.632	- Mode
L.S.	12	13.793	
Si.Di.K.	0	0	
L.Di.K.	3	3.448	
P.K.	3	3.448	
L.K.	4	4.598	
L	2	2.299	
P.L.	27	31.034	
other	5	5.747	

Other:P.Di.S-2; Si.L.S-1; L.Di.S-1; H.L.K-1

d) Plans published between 1923 and 1930

Six or more bedrooms

Element:	Count:	Percent:	
Dr.Di.K	16	61.538	- Mode
P.L.S.	0	0	
L.S.	0	0	
Si.Di.K.	0	0	
L.Di.K.	4	15.385	
P.K.	0	0	
L.K.	1	3.846	
other	5	19.231	

Other: Lo.Di.K-2; M.Di.K-1; Af.Mg.K-1; Lb.L.K-1

Four to 5 bedrooms

Element:	Count:	Percent:
Dr.Di.K	11	20
P.L.S.	1	1.818
L.S.	0	0
Si.Di.K.	10	18.182
L.Di.K.	16	29.091
P.K.	0	0
L.K.	0	0
L.K.S.	0	0
L	0	0
P.L.	1	1.818
other	16	29.091

Other: Lo.Di.K-4; P.L.K-2; H.L.K-1; H.Si.K-1; Lb.L.K-1; M.Di.K-1; P.Di.K-1; Si.Si.K-1; St.L.K-1; Di.K-1; Si.L.S-1; L.K.S-1 Di.K.S-1

One to 3 bedrooms

Element:	Count:	Percent:	
Dr.Di.K	7	10.448	
P.L.S.	9	13.433	
L.S.	12	17.91	- Mode
Si.Di.K.	1	1.493	
L.Di.K.	6	8.955	
P.K.	4	5.97	
L.K.	5	7.463	
L.K.S.	0	0	
L	9	13.433	
P.L.	9	13.433	
other	5	7.463	

Other: Si.L-2; Si.L.S-2; L.Di.S-1

Table 2.12. Requirements and restrictions for sorting out the sample according to social status

a) Plans published between 1843 and 1893

	availability of functions			**availability of labels**		**further requisites**
status	**reception**	**service**	**bedrooms**	**required**	**restricted**	**required**
upper middle	3 or more		4 or more			
middle middle	2		3 or more	kitchen		
lower middle	none or 1		3 or less		drawing/dining	

b) Plans published between 1894 and 1914

	availability of functions			**availability of labels**		**further requisites**
status	**reception**	**service**	**bedrooms**	**required**	**restricted**	**required**
upper middle	2 or more	3 or more	4 or more	drawing and/or dining and kitchen		rec.+ serv.≥6
middle middle	2 or 3	2 or 3	3 or more	kitchen		rec.+ serv.≤5
lower middle	none to 2	1 or 2	4 or less		drawing/dining	rec.+ serv.≤3

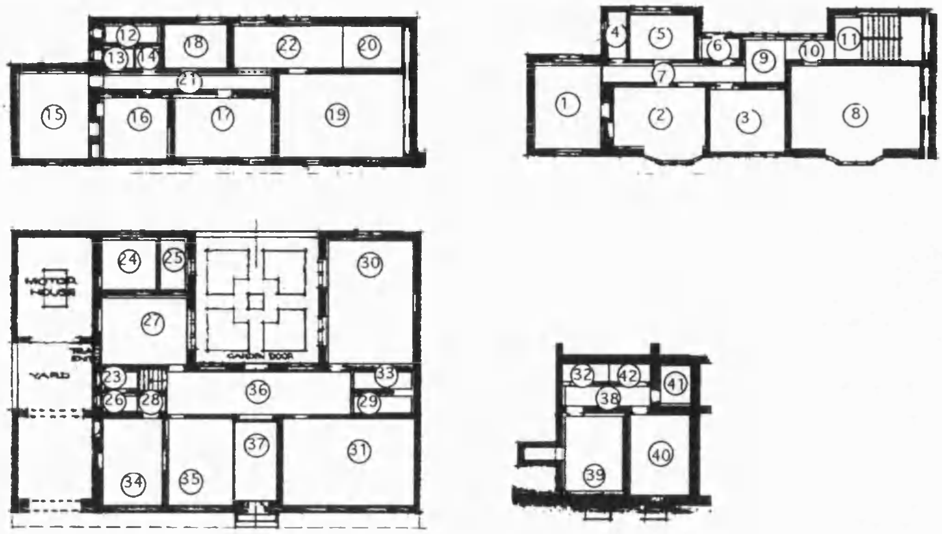
c) Plans published between 1915 and 1930

	availability of functions			**availability of labels**		**further requisites**
status	**reception**	**service**	**bedrooms**	**required**	**restricted**	**required**
upper middle	2	2	4 or more	drawing dining and kitchen		
	2 or more	3 or more		dining and kitchen		
middle middle	2 or 3	1 or 2	3 or more	dining or sitting and kitchen		
lower middle	none to 2	1 or 2	4 or less			rec.+ serv.≤3

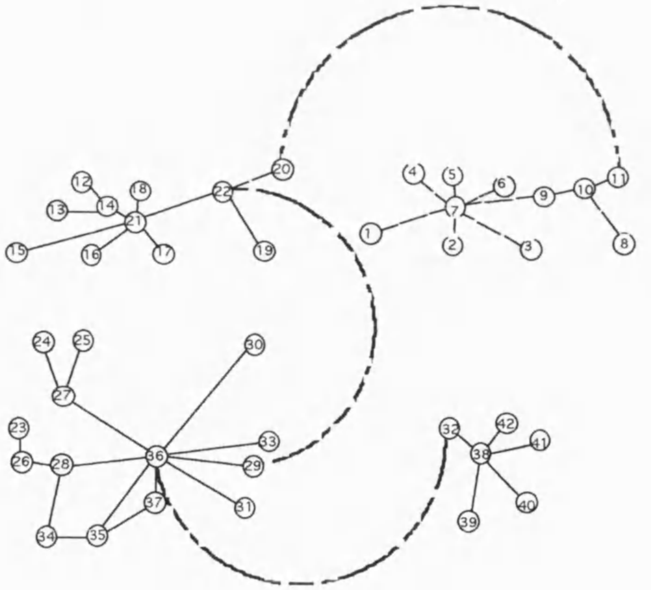
CHAPTER 3

Figure 3. Example of procedure applied to all plans (minimal living complex)

Plan broken into a minimal living complex of spaces



Access graph of minimal living complex worked from the plan



Spaces arrayed in ascending order (from more integrated to more segregated) of RRA values

landing	St.	hall	st.	T	st.	T	bed	T	kitchen	consult.	entr.	drawing	dining	store	T	T	bath	bed	bed	bed
22 >	29 >	36 >	20 >	21 >	32 >	11 >	19 =	28 >	27 >	35 >	37 >	30 =	31 =	33 >	10 >	14 >	18 =	15 =	16 =	17 >
.854	.871	.904	1.002	1.068	1.15	1.167	1.183		1.199	1.208	1.216	1.232			1.347	1.364	1.397			

	T	surgery	lavtry.	larder	scully.	T	bed	hmc	wc	store	coal	drugs	wine	T	wc	box	wc	bed	bath	bed	bed
>	38 >	34 >	26 >	25 =	24 >	9 >	8 >	13 =	12 >	42 =	39 =	40 =	41 >	7 >	23 >	6 =	4 =	2 =	5 =	1 =	3
	1.413	1.487	1.495	1.528		1.561	1.676	1.692		1.742				1.791	1.824	2.119					

Key to abreviations:

St.	mainstaircase
st.	stairs
T.	transitionspace
entr.	entrance lobby
hmc	housemaidcloset

Figure.3.1. Correlation between mean integration (mean RRA) and differentiation in integration values (BDF) in the whole sample

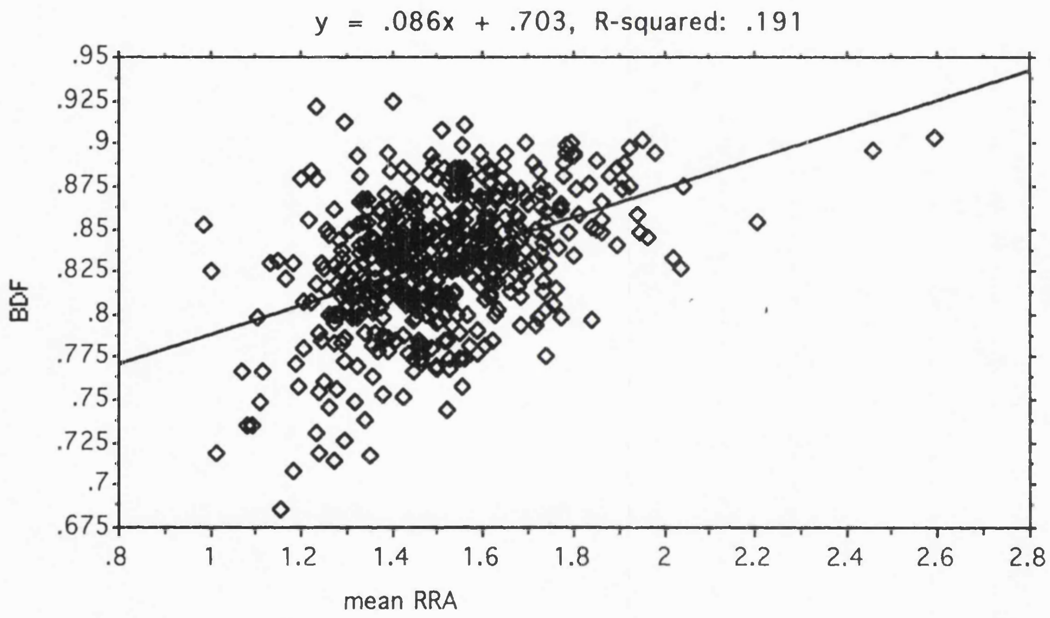
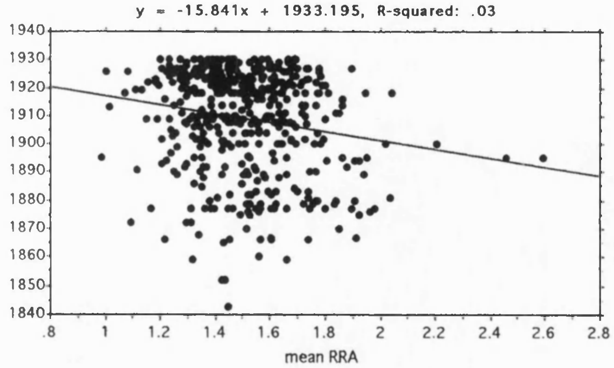
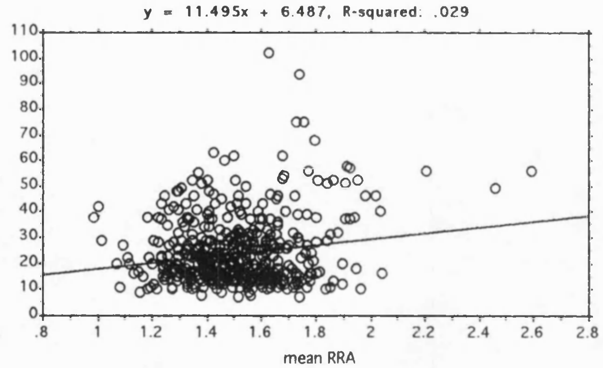


Figure .3.2. Correlation between mean integration (mean RRA) and:

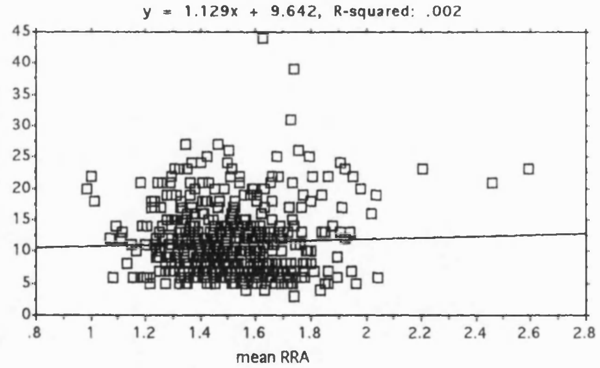
a) the year of publication



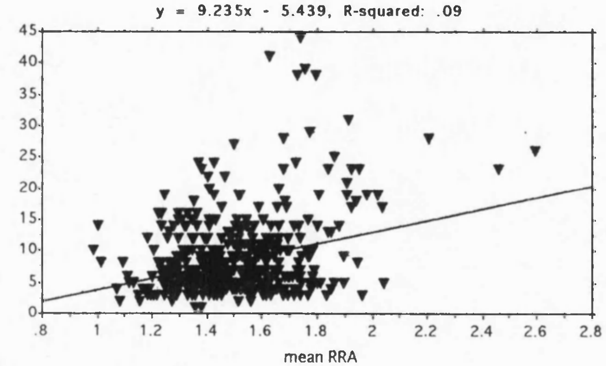
b) the number of spaces



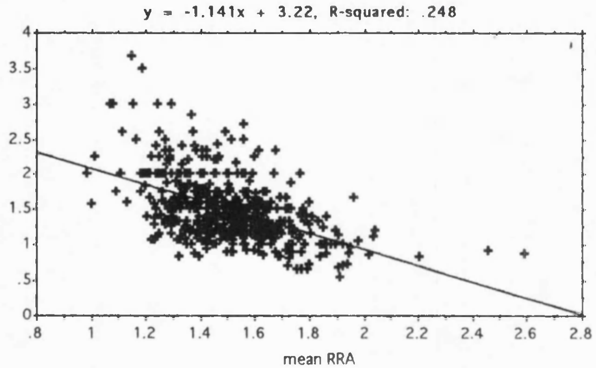
c) the number of function spaces



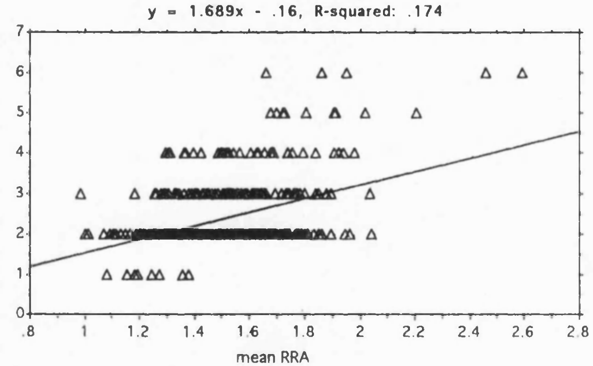
d) the number of transition spaces



e) the ratio between function and transition spaces[1]

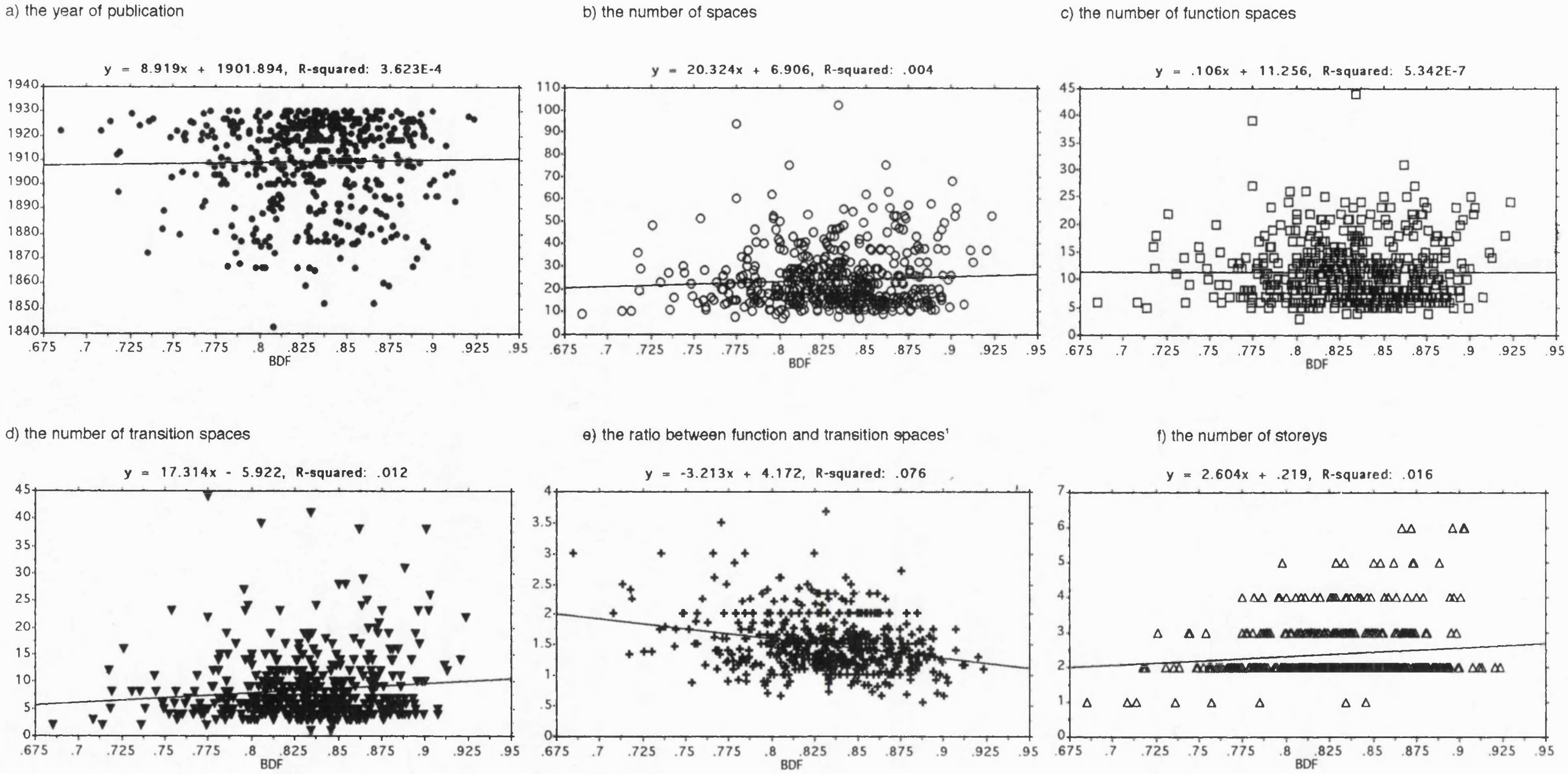


f) the number of storeys



[1] Two bungalows (houses 396 and 397) which presented a function/transition space ratio of 7 and 6, respectively, were discounted.

Figure .3.3. Correlation between the differentiation in integration values (BDF) and:



[1] Two bungalows (houses 396 and 397) which presented a function/transition space ratio of 7 and 6, respectively, were discounted.

Figure 3.4. Correlation between average integration (mean RRA) and differentiation in integration across time and social groups

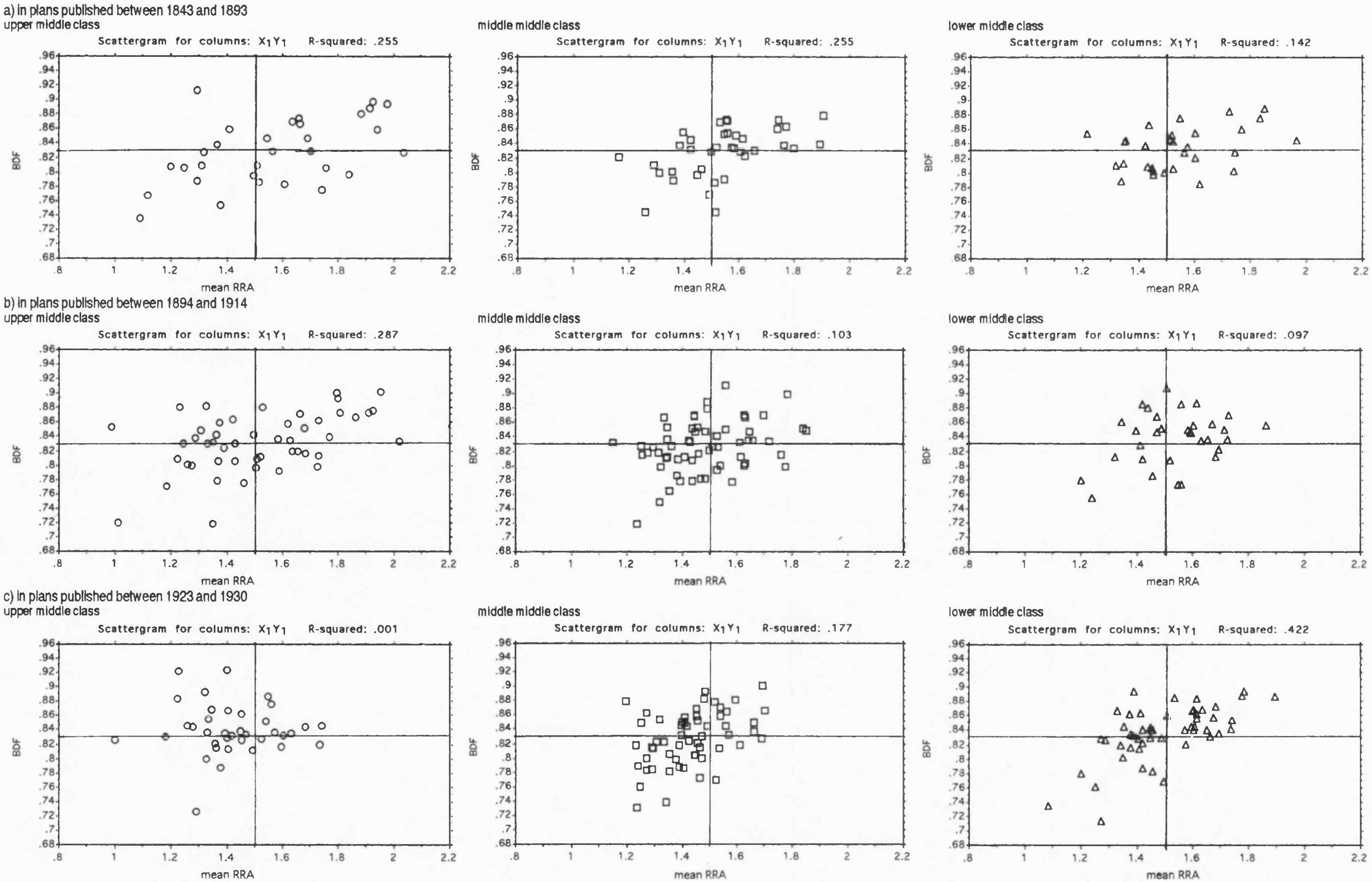
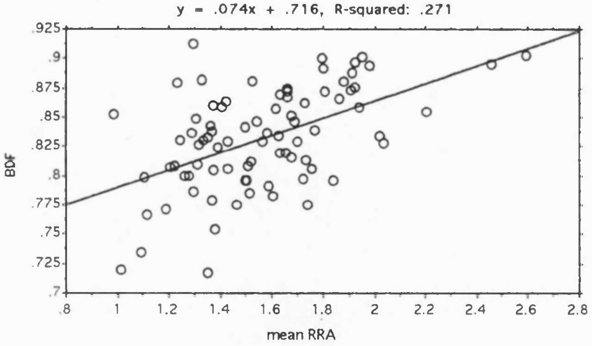


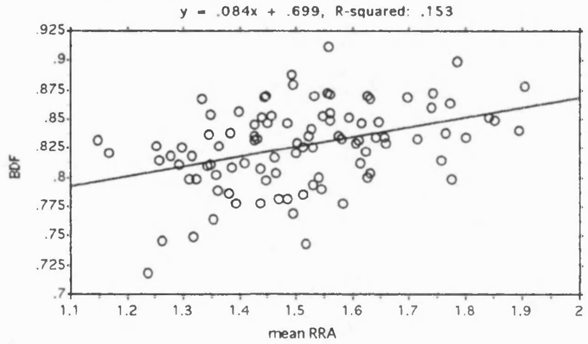
Figure 3.5. Correlation between the average integration value (mean RRA) and differentiation in integration (BDF) across social groups and time

a) in prewar houses (1843-1914)

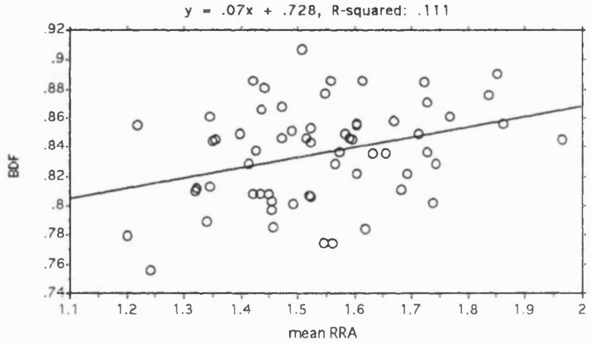
upper middle class



middle middle class

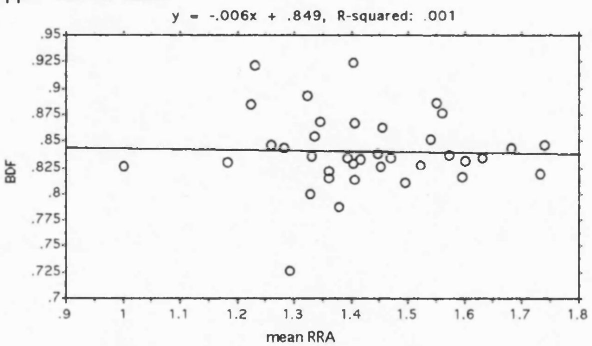


lower middle class

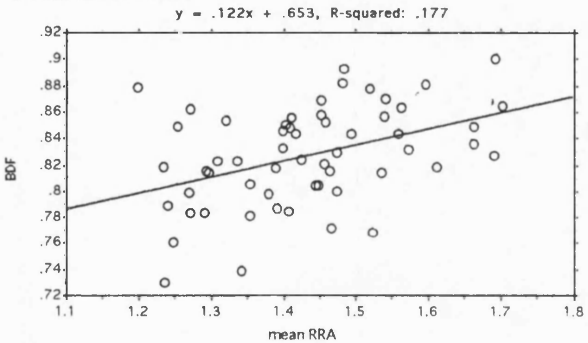


a) in postwar houses (1923-1930)

upper middle class



middle middle class



lower middle class

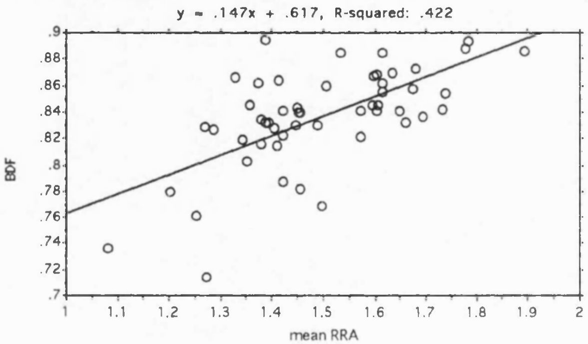


Figure 3.6. Correlation between average integration (mean RRA) and differentiation in integration (BDF) for 'single-function-centred' complexes across time

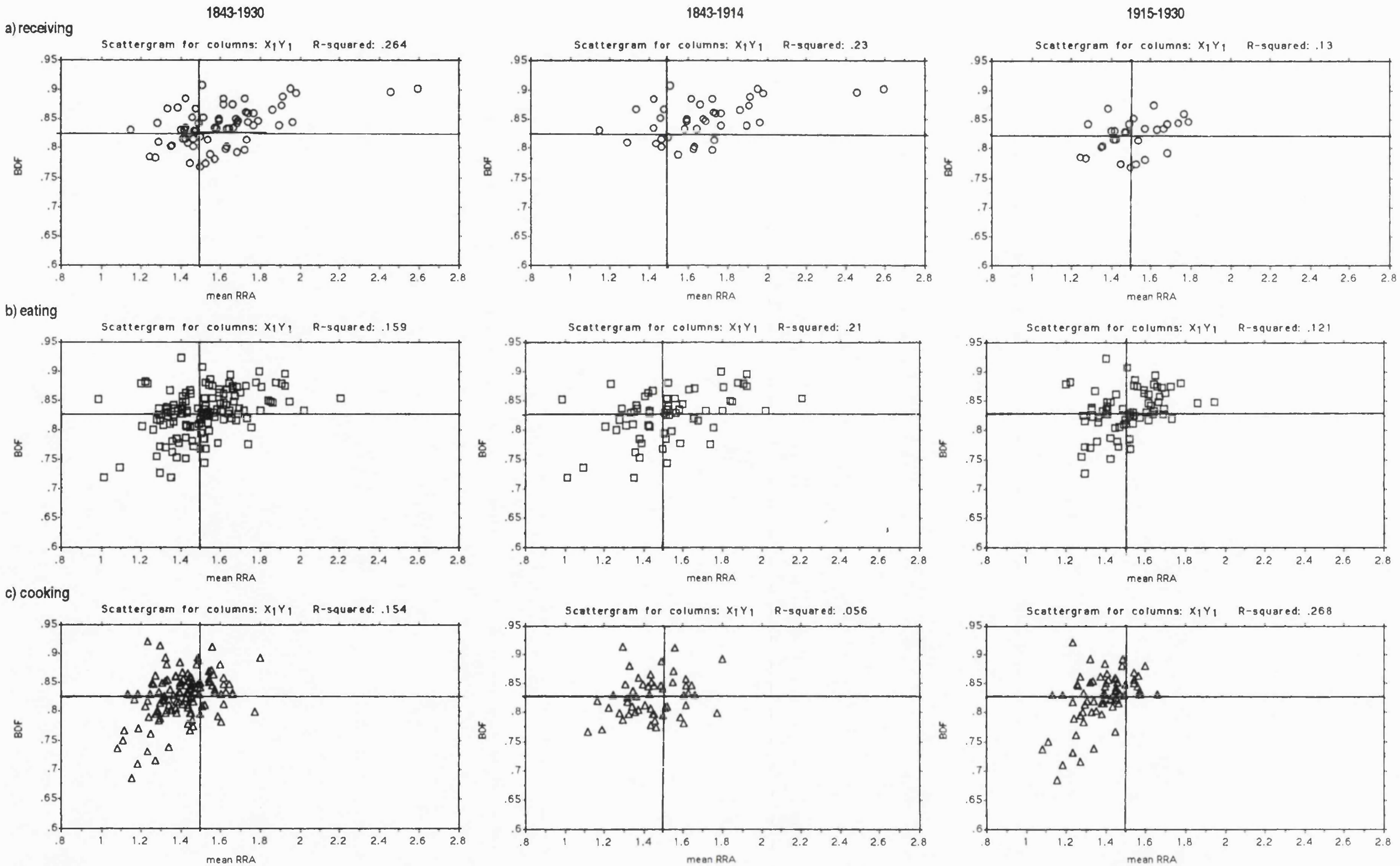
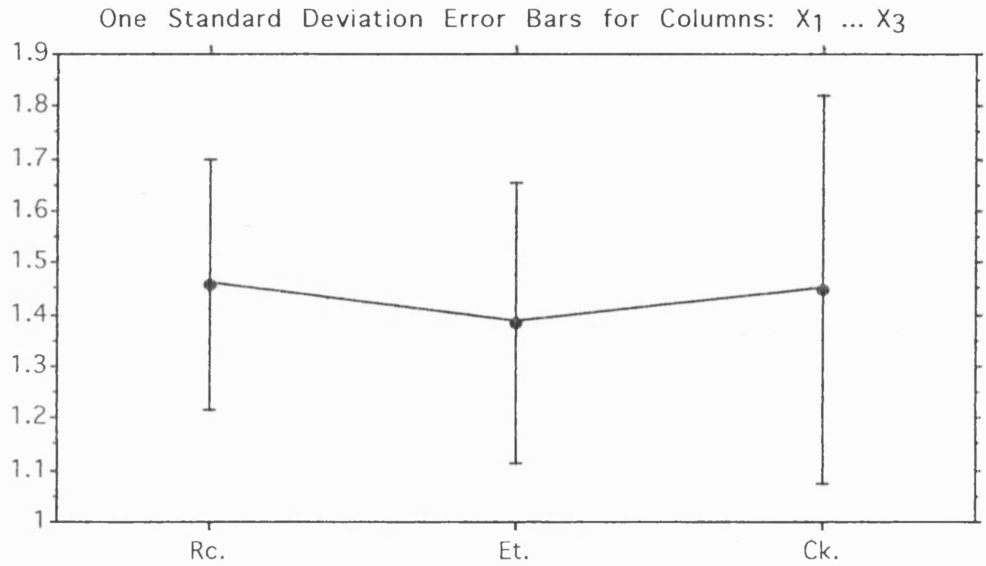
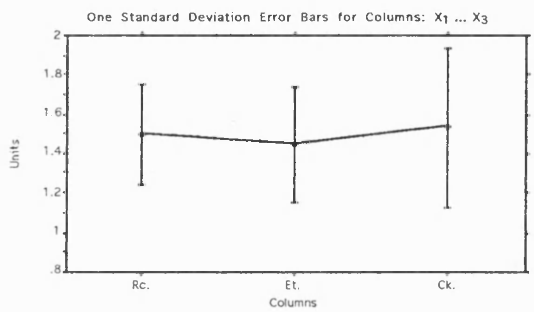


Figure 3.7. Variation in integration (RRA) for each functions in 'single-function-centred' complexes across time

a) 1843-1930



b) 1843-1914



c)1915-1930

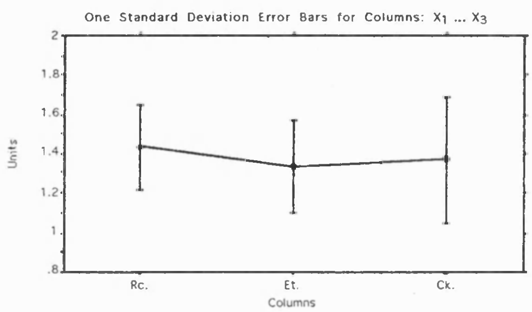
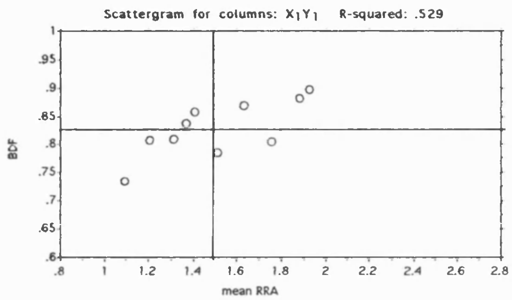


Figure 3.8. Correlation between average integration (mean RRA) and differentiation (BDF) in genotypes across class (1843-1893)

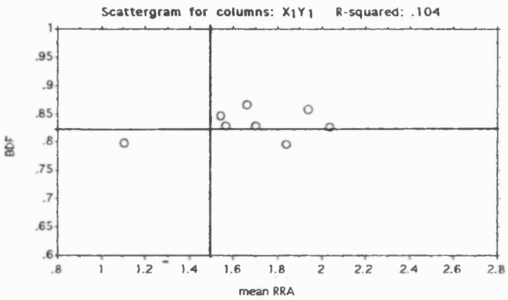
Between 1843 and 1893

a) upper middle class

E>R>C

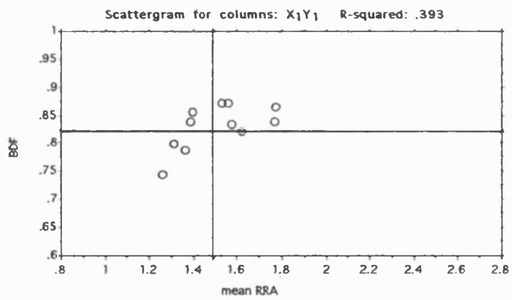


E=R>C

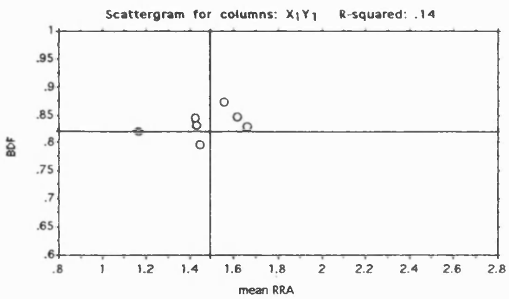


b) middle middle class

E=R>C

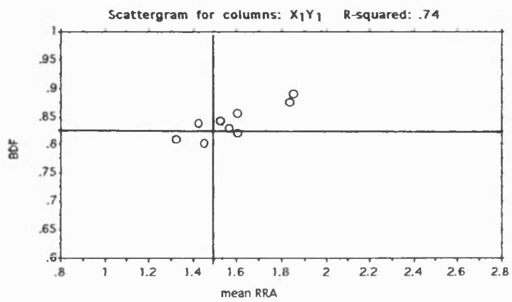


C>E=R



c) lower middle class

E/R>C



E/C>R

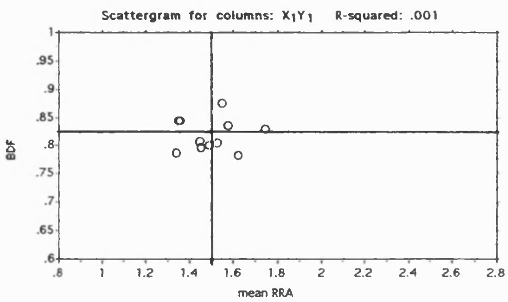
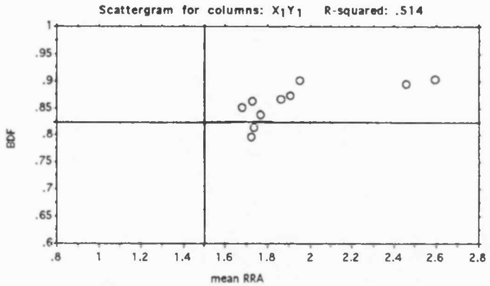


Figure 3.9. Correlation between average integration (mean RRA) and differentiation (BDF) in genotypes across class (1894-1914)

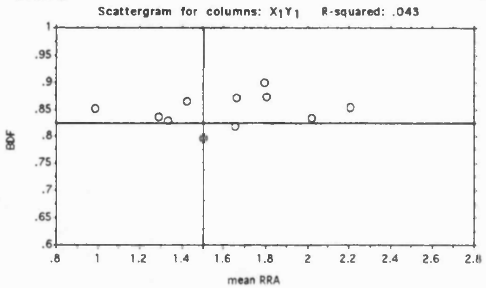
Between 1894 and 1914

a) upper middle class

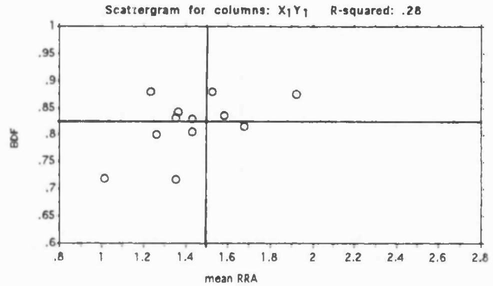
R>E>C



E>R>C

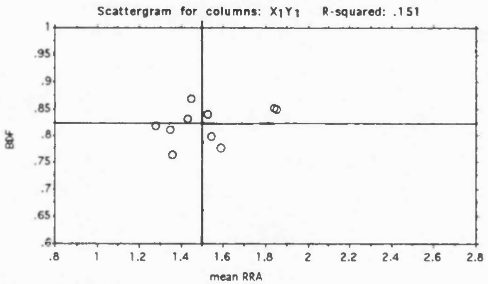


E>C>R

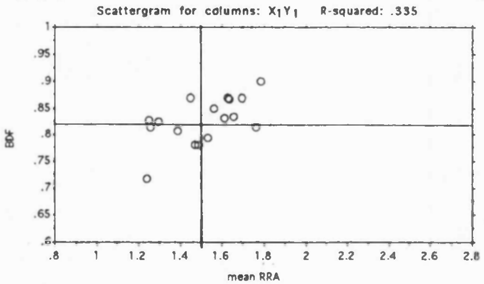


b) middle middle class

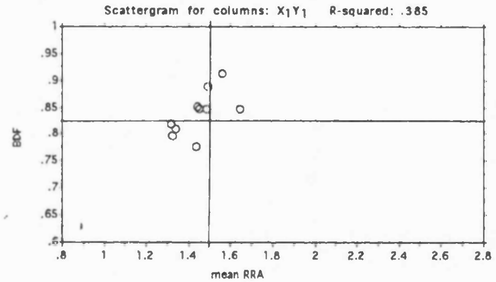
E>R>C



E=R>C

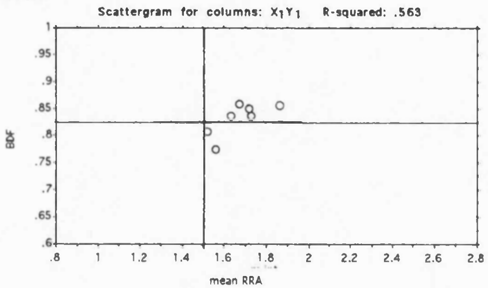


C>E=R



c) lower middle class

E=R>C



E=C>R

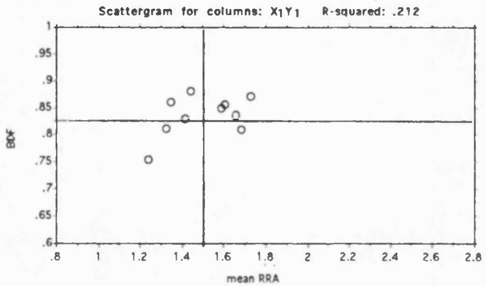
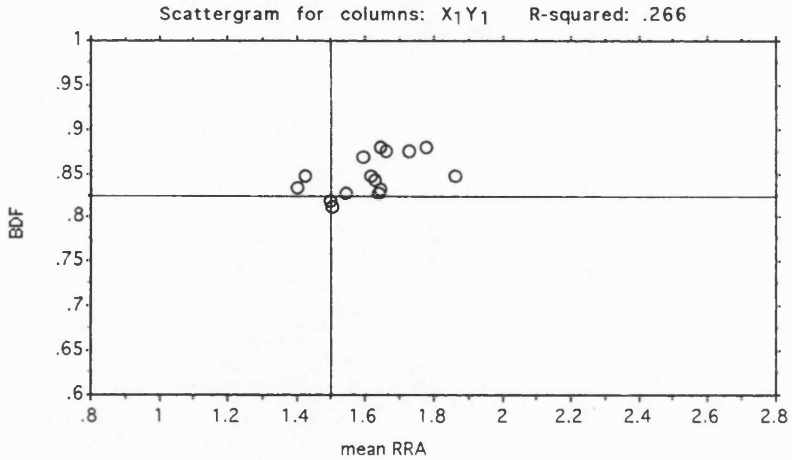


Figure 3.10. Correlation between average integration (mean RRA) and differentiation (BDF) in genotypes across class (1915-1922)

Between 1915 and 1922

lower middle class

E>C>R



E/C>R

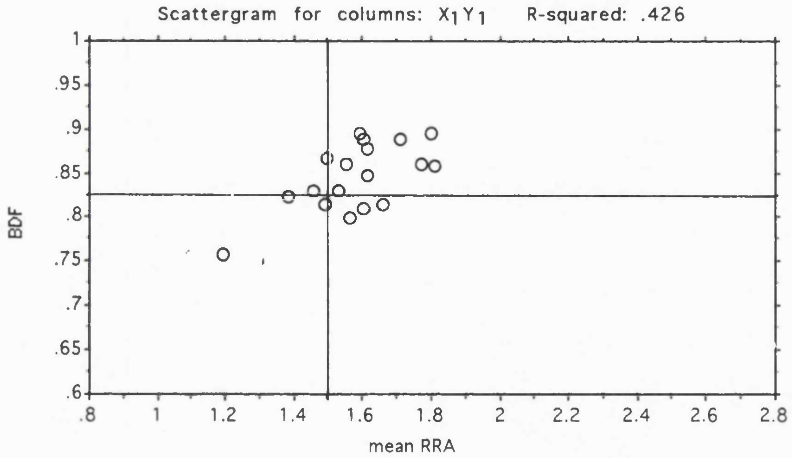
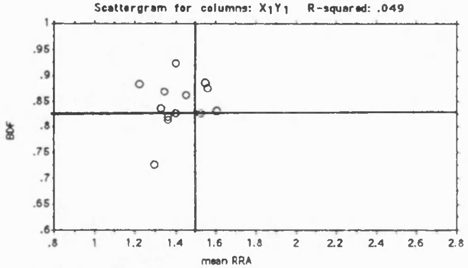


Figure 3.11. Correlation between average integration (mean RRA) and differentiation (BDF) in genotypes across class (1923-1930)

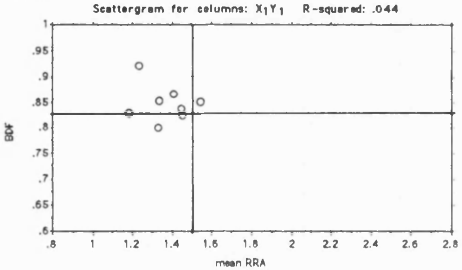
Between 1923 and 1930

a) upper middle class

E>C>R

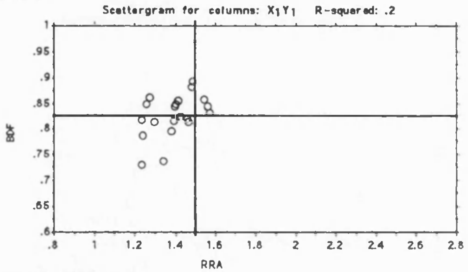


C>E>R



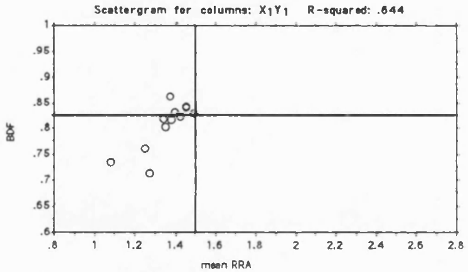
b) middle middle class

C>E=R

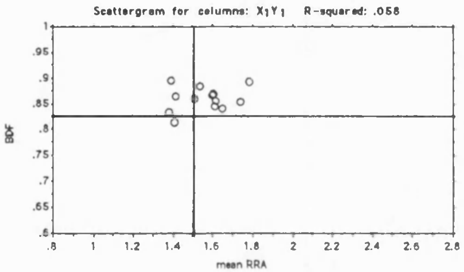


c) lower middle class

C>E/R



E=C>R



R=E/C

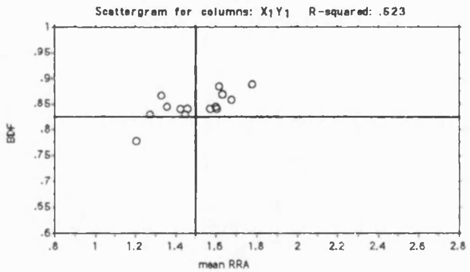


Table 3. British plans. Basic syntactic data

no. of plan	year of publication	social status	RRA values of minimal living: average	min.	max.	Base Difference Factor	RRA values of main functions: receiving	eating	cooking	integration order of main functions
1	1843	lower	1.448	.817	2.258	.808	1.874	1.201	1.201	E = C > R
2	1852	lower	1.436	.818	1.909	.866	1.182	1.182	.818	C > E = R
3	1852	lower	1.425	.83	2.106	.838	.957	.957	1.468	E = R > C
4	1859	upper	1.318	.787	2.047	.826	1.26	1.057	.967	C > E > R
5	1859	upper	1.657	1.043	2.343	.875	1.559	1.848	1.992	R > E > C
6	1860	middle	1.559	.951	2.171	.871	1.448	1.448	1.696	E = R > C
7	1865	middle	1.427	.821	2.122	.832	1.698	1.698	1.217	C > E = R
8	1866	lower	1.218	.636	1.545	.855	1.364	1.364	1.364	R = E = C
9	1866	lower	1.738	.981	2.748	.802	2.159	2.159	2.159	R = E = C
10	1866	lower	1.453	.789	2.255	.798	1.691	1.466	1.466	E = C > R
11	1866	lower	1.564	.909	2.364	.829	1.636	1.273	2	E > R > C
12	1866	lower	1.453	.789	2.255	.803	1.466	1.466	2.255	E = R > C
13	1866	lower	1.603	.904	2.411	.821	1.206	1.206	1.733	E = R > C
14	1867	upper	1.605	.971	2.794	.782	1.536	1.536	1.516	C > E = R
15	1867	upper	1.914	1.255	2.68	.888	1.59	1.699	2.391	R > E > C
16	1868	lower	1.339	.625	1.874	.789	1.201	.913	.913	E = C > R
17	1870	lower	1.85	1.206	2.562	.89	1.281	1.281	1.507	E = R > C
18	1870	lower	1.514	.785	1.963	.846	1.963	1.963	1.963	R = E = C
19	1872	upper	1.091	.497	1.715	.735	.898	.882	.946	E > R > C
20	1872	upper	1.295	.783	2.23	.787	1.489	1.157	1.089	C > E > R
21	1872	upper	1.313	.743	2.044	.809	1.094	.96	1.6	E > R > C
22	1875	lower	1.523	.825	2.31	.806	1.815	1.21	1.21	E = C > R
23	1875	upper	1.924	1.249	2.596	.897	1.605	1.576	2.071	E > R > C
24	1875	lower	1.493	.829	2.336	.801	1.809	1.658	1.658	E = C > R
25	1876	lower	1.964	1.273	3.091	.845	1.273	2.364	1.818	R > C > E
26	1876	lower	1.521	.904	2.185	.853	1.281	.98	1.884	E > R > C
27	1876	middle	1.56	.956	2.289	.855	1.622	1.533	1.844	E > R > C
28	1877	middle	1.743	1.089	2.467	.872	1.844	1.667	1.667	E = C > R
29	1877	middle	1.616	.985	2.414	.847	1.758	1.758	1.603	C > E = R
30	1877	middle	1.894	1.195	2.962	.84	1.871	2.13	2.078	R > C > E
31	1877	middle	1.8	1.106	2.802	.834	1.833	1.5	1.742	E > C > R
32	1877	middle	1.606	.951	2.461	.829	1.489	1.468	1.386	C > E > R
33	1877	middle	1.465	.805	2.26	.804	1.273	1.533	1.377	R > C > E
34	1877	middle	1.658	.983	2.541	.829	1.798	1.798	1.414	C > E = R
35	1877	middle	1.546	.899	2.572	.79	1.395	1.519	1.643	R > E > C
36	1877	middle	1.384	.806	2.045	.838	1.364	1.364	1.55	E = R > C
37	1877	middle	1.447	.82	2.323	.797	1.332	1.332	.909	C > E = R
38	1877	middle	1.167	.595	1.614	.821	1.147	1.147	1.062	C > E = R
39	1877	middle	1.31	.649	1.879	.799	1.162	1.162	1.332	E = R > C
40	1877	middle	1.398	.818	1.965	.856	1.277	1.277	1.492	E = R > C
41	1877	middle	1.361	.765	2.213	.789	1.282	1.282	1.427	E = R > C
42	1877	upper	1.564	.945	2.434	.829	1.372	1.372	1.437	E = R > C
43	1877	upper	1.977	1.302	2.727	.894	1.683	1.691	2.151	R > E > C
44	1879	middle	1.623	.977	2.566	.822	1.353	1.353	1.589	E = R > C
45	1879	lower	1.723	1.085	2.361	.885	1.34	1.723	1.723	R > E = C
46	1879	lower	1.564	.909	2.364	.829	.909	.909	1.273	E = R > C
47	1879	lower	1.836	1.182	2.636	.876	1.364	1.364	1.727	E = R > C
48	1879	lower	1.523	.88	2.2	.843	1.045	1.045	1.43	E = R > C
49	1879	upper	1.516	.899	2.583	.785	1.525	1.41	1.676	E > R > C
50	1879	upper	1.757	1.097	2.966	.805	1.447	1.346	1.786	E > R > C
51	1880	middle	1.905	1.258	2.765	.879	1.665	1.615	1.754	E > R > C
52	1880	middle	1.773	1.167	2.681	.864	1.536	1.536	2.105	E = R > C
53	1880	upper	1.38	.781	2.437	.754	1.569	1.178	1.19	E > C > R
54	1880	upper	1.839	1.122	3.119	.796	1.513	1.513	1.916	E = R > C
55	1880	middle	1.764	1.054	2.657	.838	1.457	1.457	1.75	E = R > C
56	1881	upper	2.035	1.324	3.354	.827	1.748	1.748	2.171	E = R > C
57	1881	upper	1.739	1.048	3.064	.775	2.178	1.377	1.403	E > C > R
58	1881	upper	1.408	.832	1.982	.859	1.1	1.031	1.635	E > R > C
59	1882	lower	1.453	.789	2.255	.798	1.691	1.691	1.466	C > E = R
60	1882	lower	1.603	.98	2.336	.856	1.281	1.281	1.658	E = R > C
61	1882	middle	1.517	.858	2.736	.743	1.239	1.157	1.402	E > R > C
62	1882	middle	1.532	.919	2.109	.87	1.565	1.565	2.109	E = R > C
63	1883	middle	1.592	.957	2.323	.851	1.469	1.572	1.811	R > E > C
64	1883	middle	1.739	1.062	2.507	.86	1.614	1.742	1.954	R > E > C
65	1883	lower	1.548	.904	2.035	.876	1.658	1.356	1.356	E = C > R
66	1883	lower	1.618	.818	2.454	.784	1.727	.818	.818	E = C > R
67	1883	upper	1.699	1.026	2.645	.829	1.764	1.764	2.245	E = R > C
68	1884	upper	1.688	1.015	2.498	.846	1.35	1.509	1.368	R > C > E
69	1885	lower	1.351	.766	1.915	.844	1.404	1.149	1.149	E = C > R
70	1886	lower	1.32	.605	1.705	.81	1.1	1.1	1.705	E = R > C
71	1886	upper	1.497	.935	2.585	.795	1.739	1.321	1.288	C > E > R
72	1887	middle	1.554	.95	2.158	.872	1.69	1.69	1.468	C > E = R

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Table 3. British plans. Basic syntactic data

no. of plan	year of publication	social status	RRA values of minimal living			Base Difference Factor	RRA values of main functions			integration order of main functions
			average	min.	max.		receiving	eating	cooking	
73	1888	middle	1.581	.961	2.448	.833	.961	1.457	1.519	R > E > C
74	1888	middle	1.358	.752	2.118	.802	1.606	2.118	1.162	C > R > E
75	1888	upper	1.633	.983	2.259	.869	1.297	1.06	1.646	E > R > C
76	1889	middle	1.521	.913	2.319	.835	1.998	1.406	1.603	E > C > R
77	1889	middle	1.262	.673	2.18	.745	1.202	1.202	1.411	E = R > C
78	1889	middle	1.501	.829	2.175	.829	1.683	1.359	2.175	E > R > C
79	1889	upper	1.941	1.248	2.924	.859	1.609	1.609	1.819	E = R > C
80	1889	middle	1.426	.786	1.965	.845	1.22	1.22	.993	C > E = R
81	1889	lower	1.574	.88	2.255	.837	1.375	1.155	1.155	E = C > R
82	1889	middle	1.576	.905	2.32	.835	1.387	1.387	1.471	E = R > C
83	1889	upper	1.506	.952	2.548	.808	1.405	1.405	1.206	C > E = R
84	1889	upper	1.66	1.045	2.401	.867	1.572	1.572	1.712	E = R > C
85	1890	lower	1.743	1.1	2.804	.829	1.925	1.705	1.705	E = C > R
86	1890	upper	1.25	.701	1.949	.806	1.169	1.169	1.481	E = R > C
87	1890	middle	1.512	.833	2.443	.785	1.52	1.213	1.339	E > C > R
88	1890	lower	1.345	.727	2	.813	.727	.727	.727	R = E = C
89	1890	lower	1.767	1.13	2.637	.861	1.206	1.432	1.432	R > E = C
90	1891	upper	1.117	.598	1.845	.767	1.065	1.065	.961	C > E = R
91	1891	middle	1.548	.909	2.208	.852	1.429	1.741	1.325	C > R > E
92	1892	lower	1.434	.85	2.318	.808	1.159	1.255	1.255	R > E = C
93	1892	middle	1.291	.65	1.819	.81	1.013	1.403	1.819	R > E > C
94	1892	upper	1.544	.927	2.279	.847	1.352	1.352	1.507	E = R > C
95	1892	upper	1.881	1.258	2.738	.881	1.751	1.653	2.084	E > R > C
96	1892	lower	1.356	.754	1.884	.845	1.507	1.206	1.206	E = C > R
97	1892	upper	1.365	.863	2.149	.838	1.408	1.397	1.425	E > R > C
98	1893	middle	1.494	.833	2.53	.769	1.288	1.227	1.439	E > R > C
99	1893	upper	1.202	.646	1.808	.807	1.033	.932	1.092	E > R > C
100	1893	upper	1.297	.9	1.751	.913	1.431	1.431	1.11	C > E = R
101	1894	upper	1.925	1.254	2.794	.875	1.804	1.572	1.598	E > C > R
102	1894	upper	1.908	1.172	2.654	.873	1.662	1.755	2.251	R > E > C
103	1894	upper	1.808	1.14	2.575	.873	1.477	1.429	1.911	E > R > C
104	1894	middle	1.613	.969	2.605	.812	1.757	1.394	1.363	C > E > R
105	1894	upper	1.224	.818	2.151	.808	1.272	1.333	1.091	C > R > E
106	1895	upper	1.352	.806	2.065	.832	1.489	1.115	1.237	E > C > R
107	1895	upper	2.459	1.707	3.52	.896	2.095	2.167	3.04	R > E > C
108	1895	upper	1.861	1.164	2.683	.866	1.622	1.791	1.875	R > E > C
109	1895	upper	1.662	1	2.281	.872	1.475	1.417	1.763	E > R > C
110	1895	upper	2.594	1.85	3.706	.903	2.165	2.339	2.892	R > E > C
111	1895	upper	1.953	1.308	2.659	.902	1.61	1.719	2.334	R > E > C
112	1895	upper	1.526	.971	2.135	.881	1.567	1.402	1.53	E > C > R
113	1895	upper	.987	.571	1.39	.852	1.038	.962	1.114	E > R > C
114	1895	lower	1.323	.683	1.897	.812	1.214	.986	.986	E = C > R
115	1896	upper	1.521	.883	2.401	.811	1.553	1.553	1.324	C > E = R
116	1897	middle	1.236	.651	2.235	.719	1.132	1.132	1.33	E = R > C
117	1897	middle	1.61	.987	2.518	.831	1.429	1.429	1.769	E = R > C
118	1898	upper	1.423	.956	2.188	.863	1.255	1.163	1.397	E > R > C
119	1899	middle	1.456	.877	2.122	.852	1.358	1.443	1.641	R > E > C
120	1899	lower	1.345	.769	1.826	.861	1.249	1.201	1.201	E = C > R
121	1899	upper	1.261	.774	2.128	.8	1.328	.911	.987	E > C > R
122	1900	upper	2.206	1.389	3.31	.854	1.964	1.763	2.822	E > R > C
123	1900	upper	2.019	1.302	3.259	.833	1.619	1.46	2.64	E > R > C
124	1900	middle	1.625	1.014	2.317	.87	1.665	1.665	1.9	E = R > C
125	1900	middle	1.785	1.159	2.395	.899	1.622	1.622	1.932	E = R > C
126	1900	middle	1.559	.931	2.275	.849	1.386	1.386	1.799	E = R > C
127	1900	middle	1.758	1.062	2.839	.814	1.603	1.603	2.414	E = R > C
128	1900	middle	1.43	.827	2.13	.833	1.468	1.282	1.696	E > R > C
129	1900	middle	1.444	.869	2.006	.868	1.427	1.324	1.572	E > R > C
130	1900	middle	1.696	1.055	2.416	.869	1.735	1.735	2.007	E = R > C
131	1900	upper	1.509	.875	2.396	.809	1.535	1.65	1.119	C > R > E
132	1900	middle	1.436	.778	2.333	.778	1.444	1.444	1.311	C > E = R
133	1900	middle	1.642	.993	2.523	.834	1.592	1.82	1.696	R > C > E
134	1900	middle	1.485	.817	2.423	.781	1.498	1.498	1.688	E = R > C
135	1900	upper	1.634	.961	2.553	.819	1.463	1.463	1.808	E = R > C
136	1900	upper	1.429	.85	2.325	.806	1.571	1.379	1.411	E > C > R
137	1900	upper	1.372	.744	2.089	.805	1.179	1.179	1.075	C > E = R
138	1901	middle	1.363	.817	2.119	.827	1.592	1.421	.902	C > E > R
139	1901	middle	1.345	.816	2.058	.837	1.191	1.165	1.087	C > E > R
140	1901	middle	1.425	.774	2.001	.835	1.339	1.374	1.457	R > E > C
141	1901	upper	1.428	.802	2.095	.829	2.095	1.381	1.571	E > C > R
142	1901	upper	1.679	1.003	2.676	.816	1.725	1.303	1.719	E > C > R
143	1902	middle	1.347	.746	2.051	.811	1.191	1.105	1.664	E > R > C
144	1902	middle	1.333	.765	1.778	.867	1.282	1.468	1.344	R > C > E

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Table 3. British plans. Basic syntactic data

no. of plan	year of publication	social status	RRA values of minimal living			Base Difference Factor	RRA values of main functions			integration order of main functions
			average	min.	max.		receiving	eating	cooking	
145	1902	lower	1.202	.638	1.915	.779	1.276	1.276	1.276	R = E = C
146	1902	upper	1.328	.895	1.943	.882	1.305	1.39	.895	C > R > E
147	1902	upper	1.727	1.036	2.436	.862	1.566	1.764	1.916	R > E > C
148	1902	upper	1.795	1.264	2.562	.9	1.723	1.454	2.033	E > R > C
149	1902	upper	1.676	1.109	2.637	.851	1.457	1.711	2.355	R > E > C
150	1903	middle	1.318	.717	2.289	.749	1.23	1.015	1.015	E = C > R
151	1903	upper	1.244	.719	1.863	.83	1.086	1.086	.978	C > E = R
152	1904	lower	1.506	.935	1.87	.908	1.595	1.87	1.87	R > E = C
153	1904	middle	1.529	.93	2.603	.793	1.488	1.488	1.674	E = R > C
154	1904	lower	1.559	.87	2.61	.774	1.16	1.16	1.74	E = R > C
155	1904	middle	1.774	1.039	2.91	.798	2.338	1.507	1.195	C > E > R
156	1904	middle	1.354	.744	2.295	.763	1.261	1.179	1.468	E > R > C
157	1904	upper	1.461	.788	2.382	.775	1.398	1.398	1.231	C > E = R
158	1904	middle	1.511	.859	2.26	.826	1.565	1.236	1.306	E > C > R
159	1904	lower	1.413	.797	2.086	.828	1.783	.797	.797	E = C > R
160	1904	middle	1.584	.941	2.751	.777	1.575	1.466	1.955	E > R > C
161	1904	upper	1.652	.973	2.585	.819	1.292	1.129	1.976	E > R > C
162	1904	middle	1.257	.7	1.906	.814	1.098	1.098	1.163	E = R > C
163	1905	lower	1.241	.637	2.039	.755	1.19	1.105	1.105	E = C > R
164	1905	middle	1.558	1.219	2.319	.912	1.665	1.665	1.338	C > E = R
165	1906	lower	1.691	1	2.636	.822	1.364	1.364	1.364	R = E = C
166	1906	middle	1.63	.941	2.616	.803	1.427	1.685	1.942	R > E > C
167	1906	middle	1.381	.762	2.233	.786	1.743	1.389	1.498	E > C > R
168	1906	middle	1.409	.865	2.312	.812	1.712	1.492	1.289	C > E > R
169	1906	middle	1.347	.778	1.889	.853	1.667	1.578	1.578	E = C > R
170	1906	middle	1.322	.744	2.107	.798	1.302	1.302	1.178	C > E = R
171	1907	middle	1.296	.742	1.955	.825	1.158	1.158	1.195	E = R > C
172	1907	middle	1.491	.857	1.845	.889	1.793	1.793	1.377	C > E = R
173	1907	middle	1.626	.961	2.676	.799	1.611	1.949	1.689	R > C > E
174	1907	upper	1.73	.99	2.685	.814	1.512	1.741	2.025	R > E > C
175	1907	middle	1.53	.959	2.469	.825	1.606	1.247	1.343	E > C > R
176	1907	lower	1.681	.957	2.617	.811	1.595	1.085	1.085	E = C > R
177	1907	lower	1.546	.807	2.464	.774	.807	.807	.807	R = E = C
178	1908	upper	1.624	.974	2.481	.834	1.656	1.497	1.231	C > E > R
179	1908	lower	1.49	.892	2.167	.851	1.487	1.487	1.487	R = E = C
180	1908	lower	1.67	1.021	2.425	.858	1.404	1.404	1.787	E = R > C
181	1908	lower	1.558	.935	2.039	.885	1.529	1.529	1.529	R = E = C
182	1908	upper	1.365	.731	2.194	.779	1.412	1.14	1.14	E = C > R
183	1908	middle	1.45	.837	2.076	.846	1.767	1.767	1.581	C > E = R
184	1908	upper	1.617	.975	2.324	.857	1.65	1.808	1.305	C > R > E
185	1908	lower	1.472	.77	1.925	.846	1.265	1.265	1.265	R = E = C
186	1908	lower	1.654	1.009	2.547	.836	1.586	1.201	1.201	E = C > R
187	1908	lower	1.456	.722	2.167	.785	1.275	1.275	1.232	C > E = R
188	1908	lower	1.614	1.02	2.209	.886	1.614	1.657	2.209	R > E > C
189	1908	upper	1.332	.766	1.99	.83	1.174	.902	1.276	E > R > C
190	1908	middle	1.446	.834	1.922	.87	1.514	1.514	1.82	E = R > C
191	1908	upper	1.287	.713	1.827	.837	1.107	1.07	1.218	E > R > C
192	1909	upper	1.186	.622	1.911	.771	1.2	1.2	1.067	C > E = R
193	1909	middle	1.645	.994	2.437	.847	1.395	1.395	1.331	C > E = R
194	1909	middle	1.437	.827	2.275	.807	1.489	1.22	1.137	C > E > R
195	1909	middle	1.499	.883	2.338	.821	1.403	1.611	1.455	R > C > E
196	1909	upper	1.8	1.162	2.457	.892	1.505	1.562	1.352	C > R > E
197	1909	upper	1.588	.962	2.71	.791	1.606	1.624	1.403	C > R > E
198	1909	upper	1.503	.832	2.376	.796	1.483	1.194	1.568	E > R > C
199	1909	middle	1.539	.861	2.43	.8	1.512	1.448	1.614	E > R > C
200	1909	upper	1.308	.795	1.937	.849	1.716	1.154	1.143	C > E > R
201	1909	middle	1.485	.854	2.119	.846	1.232	1.232	1.199	C > E = R
202	1909	upper	1.495	.908	2.26	.842	1.565	1.565	1.333	C > E = R
203	1909	upper	1.583	.95	2.405	.836	1.838	1.492	1.69	E > C > R
204	1909	upper	1.231	.849	1.841	.88	1.524	.937	1.111	E > C > R
205	1909	upper	1.391	.792	2.094	.824	1.613	1.613	1.613	R = E = C
206	1909	middle	1.149	.615	1.606	.832	1.162	1.606	1.537	R > C > E
207	1910	lower	1.442	.873	1.935	.88	1.555	1.188	1.188	E = C > R
208	1910	lower	1.472	.88	2.035	.868	1.54	2.035	2.035	R > E = C
209	1910	lower	1.728	1.105	2.507	.87	2.039	1.954	1.954	E = C > R
210	1910	lower	1.59	.99	2.419	.846	1.65	1.815	1.815	R > E = C
211	1910	middle	1.315	.695	1.893	.818	1.507	1.507	1.468	C > E = R
212	1910	middle	1.439	.831	2.028	.852	1.642	1.642	1.603	C > E = R
213	1910	lower	1.421	.817	1.778	.886	1.49	1.778	1.778	R > E = C
214	1910	lower	1.398	.806	1.983	.849	1.364	1.364	1.116	C > E = R
215	1910	upper	1.375	.834	1.972	.86	1.427	1.587	1.315	C > R > E
216	1910	upper	1.364	.796	1.991	.843	1.629	1.249	1.484	E > C > R

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Table 3. British plans. Basic syntactic data

no. of plan	year of publication	social status	RRA values of minimal living: average	min.	max.	Base Difference Factor	RRA values of main functions: receiving	eating	cooking	integration order of main functions
217	1910	lower	1.584	.948	2.314	.85	1.935	.948	.948	E = C > R
218	1910	lower	1.603	.977	2.337	.855	1.572	.977	.977	E = C > R
219	1910	middle	1.342	.683	1.913	.81	1.845	1.845	1.401	C > E = R
220	1910	middle	1.469	.822	2.422	.782	1.4	1.4	1.578	E = R > C
221	1911	middle	1.277	.742	1.984	.818	1.136	.894	1.288	E > R > C
222	1911	middle	1.526	.9	2.257	.841	1.27	1.246	1.492	E > R > C
223	1911	upper	1.276	.739	2.07	.799	1.208	1.109	1.01	C > E > R
224	1911	middle	1.656	.984	2.512	.834	1.411	1.411	1.476	E = R > C
225	1911	middle	1.392	.754	2.261	.778	1.496	1.181	1.294	E > C > R
226	1911	middle	1.84	1.133	2.74	.851	1.578	1.348	1.75	E > R > C
227	1911	middle	1.85	1.113	2.719	.849	1.592	1.359	1.748	E > R > C
228	1911	middle	1.631	.971	2.253	.867	1.618	1.618	1.812	E = R > C
229	1911	middle	1.715	.987	2.541	.833	1.702	1.431	1.554	E > C > R
230	1912	upper	1.349	.681	2.374	.718	1.301	1.032	1.136	E > C > R
231	1912	middle	1.494	.919	2.041	.879	1.701	1.327	1.327	E = C > R
232	1913	upper	1.012	.603	1.98	.719	1.047	.818	.904	E > C > R
233	1913	upper	1.724	1.093	2.993	.797	1.41	1.424	2.115	R > E > C
234	1914	upper	1.766	1.154	2.838	.839	1.555	1.603	1.799	R > E > C
235	1914	lower	1.421	.77	2.145	.808	2.145	1.045	1.375	E > C > R
236	1914	lower	1.726	1.045	2.639	.836	1.045	1.045	1.21	E = R > C
237	1914	lower	1.595	.957	2.361	.846	1.595	1.213	1.723	E > R > C
238	1914	lower	1.713	1.055	2.562	.849	1.13	1.13	1.507	E = R > C
239	1914	lower	1.519	.82	2.289	.807	.82	.82	1.059	E = R > C
240	1914	lower	1.861	1.155	2.749	.856	1.65	1.65	2.145	E = R > C
241	1914	lower	1.63	.98	2.487	.835	1.055	1.055	1.582	E = R > C
242	1914	middle	1.385	.792	2.179	.808	1.387	1.387	1.698	E = R > C
243	1914	middle	1.462	.802	2.18	.816	1.299	1.908	1.443	R > C > E
244	1914	middle	1.252	.701	1.845	.827	1.221	1.221	1.377	E = R > C
245	1915	lower	1.274	.678	1.959	.795	1.432	1.432	1.281	C > E = R
246	1915	lower	1.524	.892	2.634	.775	1.487	1.614	2.082	R > E > C
247	1916	upper	1.571	.883	2.601	.781	1.224	1.636	1.601	R > C > E
248	1916	upper	1.616	1.024	2.723	.81	1.487	1.487	1.565	E = R > C
249	1916	lower	1.658	.98	2.637	.814	1.733	1.432	1.432	E = C > R
250	1916	lower	1.553	.902	2.142	.86	2.142	1.015	1.015	E = C > R
251	1916	lower	1.218	.636	1.545	.855	1.545	1.545	1.545	R = E = C
252	1916	lower	1.385	.721	1.935	.824	1.631	1.252	1.252	E = C > R
253	1916	lower	1.861	1.21	2.914	.848	2.035	1.265	1.815	E > C > R
254	1916	lower	1.506	.935	1.87	.908	1.87	.99	1.87	E > R = C
255	1916	lower	1.384	.754	1.733	.871	1.432	1.658	1.658	R > E = C
256	1916	lower	1.603	.98	2.11	.888	2.11	1.055	1.055	E = C > R
257	1917	middle	1.516	.911	2.206	.852	1.247	1.391	1.343	R > C > E
258	1917	middle	1.296	.707	1.924	.816	1.188	1.188	1.443	E = R > C
259	1918	lower	1.457	.893	2.17	.85	1.659	1.659	1.659	R = E = C
260	1918	lower	1.329	.678	1.733	.84	1.356	1.055	1.733	E > R > C
261	1918	lower	1.691	1	2.636	.822	1	1	1.364	E = R > C
262	1918	lower	2.044	1.366	3.035	.874	1.366	1.366	1.366	R = E = C
263	1918	middle	1.946	1.209	2.944	.848	1.705	1.333	1.519	E > C > R
264	1918	lower	1.778	1.138	2.504	.88	1.669	1.29	1.593	E > C > R
265	1918	lower	1.498	.797	2.162	.819	1.707	.948	1.252	E > C > R
266	1918	lower	1.569	.935	2.379	.835	1.614	1.912	1.827	R > C > E
267	1918	lower	1.641	.99	2.145	.887	.99	.99	1.155	E = R > C
268	1918	lower	1.641	.99	2.145	.887	.99	.99	1.155	E = R > C
269	1918	lower	1.558	.913	2.066	.875	.913	.913	1.009	E = R > C
270	1918	lower	1.809	1.127	2.665	.858	1.674	1.332	1.332	E = C > R
271	1918	lower	1.773	1.105	2.592	.861	1.657	1.232	1.232	E = C > R
272	1918	lower	1.773	1.105	2.592	.861	1.657	1.232	1.232	E = C > R
273	1918	lower	1.726	1.1	2.466	.875	1.631	1.1	1.176	E > C > R
274	1918	lower	1.641	.99	2.2	.88	1.595	1.045	1.21	E > C > R
275	1918	lower	1.638	.957	2.489	.828	1.595	1.085	1.34	E > C > R
276	1918	lower	1.299	.721	2.011	.805	1.328	1.328	1.328	R = E = C
277	1918	lower	1.496	.865	2.018	.866	1.442	.961	.961	E = C > R
278	1918	lower	1.541	.91	2.352	.83	1.442	1.442	1.442	R = E = C
279	1918	lower	1.551	.865	2.21	.838	1.442	1.442	1.442	R = E = C
280	1918	lower	1.489	.825	2.255	.813	1.43	.88	.88	E = C > R
281	1918	lower	1.551	.865	2.21	.838	1.442	1.442	1.442	R = E = C
282	1918	lower	1.565	.961	2.114	.882	1.538	1.538	1.538	R = E = C
283	1918	lower	1.553	.957	1.978	.899	.957	.957	1.851	E = R > C
284	1918	lower	1.54	.88	2.31	.826	1.485	.935	1.21	E > C > R
285	1918	lower	1.467	.85	2.209	.829	1.444	1.742	1.657	R > C > E
286	1918	lower	1.553	.83	2.617	.757	1.468	1.468	1.468	R = E = C
287	1918	lower	1.564	.909	2.545	.799	1.636	1.273	1.273	E = C > R
288	1918	lower	1.455	.825	2.145	.831	1.595	1.485	1.485	E = C > R

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Table 3. British plans. Basic syntactic data

no. of plan	year of publication	social status	RRA values of minimal living: average	min.	max.	Base Difference Factor	RRA values of main functions: receiving	eating	cooking	integration order of main functions
289	1918	lower	1.351	.759	2.124	.803	1.366	1.669	1.669	R > E = C
290	1918	lower	1.617	.986	2.2	.878	1.517	1.062	1.062	E = C > R
291	1918	lower	1.337	.715	1.815	.841	1.595	1.595	1.595	R = E = C
292	1918	middle	1.068	.572	1.767	.766	1.039	1.039	1.767	E = R > C
293	1918	middle	1.415	.821	2.207	.816	1.33	1.528	1.358	R > C > E
294	1918	lower	1.483	.883	2.234	.837	1.507	1.351	1.767	E > R > C
295	1918	lower	1.535	.85	2.209	.832	1.529	1.275	1.657	E > R > C
296	1918	lower	1.54	.935	2.09	.878	1.98	1.485	2.09	E > R > C
297	1918	lower	1.404	.77	2.035	.827	1.375	1.045	1.43	E > R > C
298	1918	lower	1.613	1.009	2.355	.862	1.009	1.009	1.201	E = R > C
299	1918	lower	1.422	.807	1.997	.848	1.359	1.02	1.317	E > C > R
300	1919	lower	1.421	.817	2.355	.788	1.49	1.297	1.778	E > R > C
301	1919	lower	1.404	.797	2.011	.841	1.252	1.1	1.48	E > R > C
302	1919	lower	1.535	.935	2.507	.812	1.657	1.487	1.954	E > R > C
303	1919	lower	1.444	.807	2.422	.774	1.359	1.402	1.869	R > E > C
304	1919	upper	1.111	.489	1.644	.749	.933	.933	.889	C > E = R
305	1919	lower	1.593	.961	2.21	.869	1.538	1.057	1.249	E > C > R
306	1919	middle	1.129	.607	1.593	.83	1.1	1.1	.986	C > E = R
307	1919	middle	1.305	.744	1.983	.821	1.209	1.209	1.054	C > E = R
308	1919	lower	1.433	.765	2.124	.81	1.359	1.359	1.105	C > E = R
309	1920	upper	1.514	.925	2.01	.886	1.517	1.295	1.295	E = C > R
310	1920	upper	1.591	.991	2.299	.865	1.377	1.338	1.397	E > R > C
311	1920	upper	1.28	.727	2.257	.756	1.121	1.015	1.166	E > R > C
312	1920	middle	1.649	1.055	2.211	.895	1.719	1.633	1.803	E > R > C
313	1920	lower	1.605	.877	2.433	.809	1.358	1.019	1.019	E = C > R
314	1920	lower	1.592	.991	2.084	.895	1.503	1.025	1.025	E = C > R
315	1920	lower	1.648	1.02	2.422	.857	1.02	1.02	1.147	E = R > C
316	1920	lower	1.567	.961	2.51	.822	1.705	1.581	2.014	E > R > C
317	1920	lower	1.399	.835	2.124	.835	1.669	1.442	1.593	E > C > R
318	1920	lower	1.322	.682	2.107	.77	1.178	1.116	1.612	E > R > C
319	1920	middle	1.508	.899	2.324	.829	1.395	1.085	1.085	E = C > R
320	1921	upper	1.499	.889	2.178	.849	1.556	1.556	1.378	C > E = R
321	1921	lower	1.383	.786	1.913	.853	1.298	1.298	1.298	R = E = C
322	1921	lower	1.423	.797	2.162	.815	1.328	1.48	1.48	R > E = C
323	1921	lower	1.532	.91	2.352	.829	1.442	1.138	1.138	E = C > R
324	1921	lower	1.711	1.085	2.324	.889	1.581	1.085	1.085	E = C > R
325	1921	middle	1.79	1.151	2.781	.848	1.606	1.678	1.918	R > E > C
326	1921	lower	1.66	1.02	2.294	.875	1.572	1.147	1.359	E > C > R
327	1921	lower	1.286	.765	1.954	.834	1.487	1.487	1.402	C > E = R
328	1921	lower	1.395	.837	1.829	.885	1.395	1.395	1.271	C > E = R
329	1921	lower	1.519	.854	2.494	.785	1.503	1.23	1.537	E > R > C
330	1921	lower	1.503	.913	2.451	.812	1.49	1.105	1.393	E > C > R
331	1921	lower	1.192	.527	1.733	.757	1.733	.527	.527	E = C > R
332	1921	lower	1.802	1.176	2.466	.894	1.707	1.328	1.328	E = C > R
333	1921	lower	1.682	1.009	2.835	.794	1.682	1.778	1.778	R > E = C
334	1921	lower	1.513	.91	2.2	.853	1.669	1.669	1.669	R = E = C
335	1921	middle	1.445	.851	2.552	.767	1.259	1.259	1.225	C > E = R
336	1921	middle	1.614	1.01	2.261	.876	1.01	1.411	1.603	R > E > C
337	1921	lower	1.616	.957	2.357	.847	1.469	1.127	1.367	E > C > R
338	1922	lower	1.152	.451	1.804	.685	1.353	1.353	1.015	C > E = R
339	1922	middle	1.242	.625	1.874	.785	.625	1.201	.913	R > C > E
340	1922	lower	1.671	1.02	2.422	.858	1.742	1.487	1.869	E > R > C
341	1922	lower	1.767	1.13	2.637	.861	1.206	1.431	1.431	R > E = C
342	1922	lower	1.182	.455	1.727	.708	1.364	1.364	1	C > E = R
343	1922	lower	1.637	.892	2.337	.83	1.105	1.105	1.402	E = R > C
344	1922	lower	1.447	.83	1.978	.86	1.468	1.468	1.213	C > E = R
345	1922	lower	1.421	.817	2.547	.752	1.393	1.105	1.49	E > R > C
346	1922	lower	1.713	1.055	2.939	.794	1.356	1.356	1.356	R = E = C
347	1922	lower	1.47	.873	2.39	.806	1.404	1.024	1.404	E > R = C
348	1922	lower	1.624	.991	2.46	.842	1.537	1.196	1.503	E > C > R
349	1922	middle	1.284	.713	2.014	.8	1.209	1.581	1.085	C > R > E
350	1922	middle	1.297	.68	2.082	.772	1.614	1.062	1.529	E > C > R
351	1922	lower	1.64	.957	2.46	.833	1.913	1.196	1.503	E > C > R
352	1922	lower	1.612	.911	2.254	.848	1.367	1.127	1.127	E = C > R
353	1923	lower	1.49	.85	2.209	.83	1.444	1.444	1.19	C > E = R
354	1923	middle	1.408	.835	2.049	.848	1.366	.986	1.138	E > C > R
355	1923	lower	1.572	.935	2.338	.841	1.455	1.455	1.455	R = E = C
356	1923	lower	1.616	1.013	2.208	.884	1.481	1.481	1.481	R = E = C
357	1923	middle	1.271	.721	1.707	.862	1.252	1.252	1.176	C > E = R
358	1923	middle	1.451	.873	2.011	.869	1.404	1.404	1.48	E = R > C
359	1923	middle	1.519	.961	2.138	.877	1.519	1.519	1.643	E = R > C
360	1923	upper	1.74	1.091	2.666	.846	1.575	1.697	2.06	R > E > C

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Table 3. British plans. Basic syntactic data

no. of plan	year of publication	social status	RRA values of minimal living: average	min.	max.	Base Difference Factor	RRA values of main functions: receiving	eating	cooking	integration order of main functions
361	1923	middle	1.493	.887	2.206	.843	1.319	1.534	1.391	R > C > E
362	1923	middle	1.473	.829	2.333	.8	1.267	1.267	1.4	E = R > C
363	1923	upper	1.733	.994	2.655	.82	1.375	1.13	1.457	E > R > C
364	1923	middle	1.424	.786	2.089	.824	1.22	1.22	.848	C > E = R
365	1923	middle	1.464	.899	2.386	.815	1.395	1.395	1.147	C > E = R
366	1923	upper	1.183	.695	1.8	.829	1.476	1.19	1.143	C > E > R
367	1923	lower	1.387	.715	1.87	.833	1.32	.88	1.265	E > C > R
368	1923	lower	1.388	.807	1.699	.894	1.359	.85	.85	E = C > R
369	1923	lower	1.506	.88	2.09	.86	1.485	1.045	1.045	E = C > R
370	1923	middle	1.534	.926	2.478	.814	1.334	1.416	1.47	R > E > C
371	1923	upper	1.36	.742	1.991	.821	1.538	1.032	1.231	E > C > R
372	1923	middle	1.612	.961	2.553	.818	1.406	1.391	1.836	E > R > C
373	1923	lower	1.603	.977	2.252	.868	1.529	1.105	1.105	E = C > R
374	1923	lower	1.608	.986	2.428	.845	1.517	1.214	1.214	E = C > R
375	1923	lower	1.535	.935	2.039	.885	1.487	.977	.977	E = C > R
376	1923	upper	1.406	.799	2.171	.814	1.181	1.181	1.496	E = R > C
377	1923	upper	1.379	.703	2.089	.787	1.386	1.386	1.654	E = R > C
378	1924	middle	1.391	.764	2.235	.787	1.245	1.245	1.754	E = R > C
379	1924	lower	1.783	1.176	2.466	.894	1.783	1.176	1.176	E = C > R
380	1924	lower	1.574	.935	2.2	.821	.935	.935	1.1	E = R > C
381	1924	upper	1.334	.763	1.853	.854	1.615	1.199	.951	C > E > R
382	1924	upper	1.493	.882	2.389	.811	1.283	1.058	1.347	E > R > C
383	1924	middle	1.398	.805	2.001	.846	1.637	1.637	1.013	C > E = R
384	1924	middle	1.271	.651	1.952	.783	.651	1.147	.899	R > C > E
385	1924	middle	1.308	.732	1.951	.822	1.133	1.133	1.234	E = R > C
386	1924	upper	1.523	.923	2.389	.827	1.629	1.357	1.593	E > C > R
387	1924	middle	1.235	.579	2.006	.73	1.282	1.282	.889	C > E = R
388	1924	lower	1.496	.865	2.595	.769	1.442	1.538	1.538	R > E = C
389	1924	middle	1.571	.924	2.378	.832	1.651	1.651	1.318	C > E = R
390	1924	lower	1.422	.807	2.039	.841	1.359	1.359	1.359	R = E = C
391	1924	lower	1.68	1.059	2.391	.873	1.708	1.503	1.879	E > R > C
392	1924	lower	1.404	.797	2.086	.828	1.404	1.176	1.555	E > R > C
393	1924	lower	1.693	1.062	2.656	.837	1.669	1.366	2.124	E > R > C
394	1924	lower	1.616	.991	2.323	.862	1.537	1.435	1.811	E > R > C
395	1924	lower	1.286	.66	1.76	.826	1.155	1.045	1.65	E > R > C
396	1924	lower	1.356	.754	1.884	.845	.754	.754	.754	R = E = C
397	1924	lower	1.378	.725	1.885	.834	1.015	.725	.725	E = C > R
398	1925	lower	1.342	.722	1.954	.819	1.275	1.275	1.02	C > E = R
399	1925	lower	1.252	.595	1.912	.761	1.147	1.147	.892	C > E = R
400	1925	middle	1.452	.911	2.155	.857	1.444	1.711	1.311	C > R > E
401	1925	upper	1.403	.761	2.007	.828	1.494	1.228	1.384	E > C > R
402	1925	middle	1.411	.803	1.937	.856	1.248	1.248	1.047	C > E = R
403	1925	middle	1.29	.594	1.811	.783	1.5	.905	.849	C > E > R
404	1925	upper	1.281	.744	1.86	.843	1.24	1.426	1.86	R > E > C
405	1926	upper	1.416	.773	2.012	.832	1.387	1.595	1.655	R > E > C
406	1926	lower	1.65	.948	2.39	.841	1.48	1.176	1.176	E = C > R
407	1926	upper	1.327	.738	2.084	.8	1.507	1.202	1.042	C > E > R
408	1926	middle	1.399	.807	2.082	.832	1.402	1.614	1.529	R > C > E
409	1926	middle	1.247	.683	2.124	.76	1.593	2.124	1.138	C > R > E
410	1926	upper	1.002	.575	1.512	.825	.904	.904	.92	E = R > C
411	1926	middle	1.39	.744	2.027	.817	1.179	1.179	.972	C > E = R
412	1926	upper	1.329	.872	2.16	.836	1.516	1.219	1.239	E > C > R
413	1926	lower	1.273	.545	2	.714	1.273	1.273	.909	C > E = R
414	1926	lower	1.082	.452	1.582	.736	1.206	1.206	.904	C > E = R
415	1926	middle	1.416	.831	2.067	.844	1.294	1.294	1.294	R = E = C
416	1926	middle	1.406	.848	2.424	.785	1.151	1.151	1.666	E = R > C
417	1926	upper	1.549	.962	2.084	.886	1.363	1.235	1.315	E > C > R
418	1926	middle	1.335	.753	2.001	.823	1.221	.753	1.013	E > C > R
419	1926	middle	1.481	.909	2.001	.882	1.377	1.377	1.169	C > E = R
420	1926	upper	1.323	.897	1.881	.892	1.333	1.405	1.246	C > R > E
421	1926	middle	1.24	.682	1.983	.789	1.612	1.612	1.488	C > E = R
422	1926	lower	1.777	1.155	2.474	.888	1.21	1.21	1.375	E = R > C
423	1926	upper	1.223	.8	1.733	.884	1.276	.943	1.086	E > C > R
424	1926	lower	1.66	.992	2.541	.832	1.798	1.488	1.178	C > E > R
425	1927	middle	1.473	.932	2.367	.83	1.435	1.678	1.621	R > C > E
426	1927	middle	1.562	.936	2.194	.863	1.718	1.769	1.412	C > R > E
427	1927	lower	1.734	1.021	2.553	.842	1.149	1.149	1.915	E = R > C
428	1927	lower	1.893	1.213	2.617	.886	1.595	1.595	1.978	E = R > C
429	1927	lower	1.33	.766	1.787	.866	1.404	1.404	1.404	R = E = C
430	1927	upper	1.26	.679	1.698	.846	1.047	1.358	.99	C > R > E
431	1927	lower	1.447	.825	2.145	.83	1.54	1.54	1.54	R = E = C
432	1927	lower	1.202	.638	1.915	.779	1.276	1.276	1.276	R = E = C

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Table 3. British plans. Basic syntactic data

no. of plan	year of publication	social status	RRA values of minimal living average	min.	max.	Base Difference Factor	RRA values of main functions receiving	eating	cooking	integration order of main functions
433	1927	upper	1.54	.937	2.27	.851	1.786	1.595	1.302	C > E > R
434	1927	lower	1.634	1.057	2.403	.869	1.057	1.057	1.057	R = E = C
435	1927	lower	1.777	1.155	2.474	.888	1.21	1.21	1.21	R = E = C
436	1927	lower	1.614	1.02	2.422	.855	1.954	1.869	1.869	E = C > R
437	1927	lower	1.455	.88	2.2	.84	1.43	1.43	1.43	R = E = C
438	1927	lower	1.675	1.045	2.474	.858	1.1	1.1	1.1	R = E = C
439	1927	lower	1.603	.829	2.11	.841	1.356	1.356	1.356	R = E = C
440	1927	lower	1.739	1.062	2.549	.854	1.657	1.614	1.614	E = C > R
441	1927	lower	1.595	.957	2.361	.846	1.595	1.595	1.595	R = E = C
442	1927	middle	1.701	1.047	2.433	.865	1.641	1.528	1.952	E > R > C
443	1927	middle	1.539	.933	2.222	.857	1.422	1.422	1.378	C > E = R
444	1927	middle	1.354	.786	2.295	.781	1.22	.972	1.468	E > R > C
445	1927	upper	1.402	1.013	1.881	.924	1.29	1.315	1.387	E > C > R
446	1927	upper	1.572	.946	2.389	.837	1.363	1.363	1.17	C > E = R
447	1927	middle	1.253	.703	1.737	.849	1.158	1.158	.951	C > E = R
448	1927	lower	1.271	.645	1.707	.829	1.176	1.176	1.176	R = E = C
449	1927	middle	1.342	.683	2.276	.738	1.442	1.442	1.29	C > E = R
450	1927	upper	1.454	.876	2.057	.862	1.604	1.218	1.278	E > C > R
451	1928	lower	1.414	.865	2.018	.864	1.538	1.442	1.442	E = C > R
452	1928	upper	1.56	1.015	2.257	.876	1.56	1.409	1.454	E > C > R
453	1928	middle	1.445	.851	2.348	.804	1.293	1.089	1.259	E > C > R
454	1928	middle	1.297	.731	1.99	.814	1.412	1.412	.936	C > E = R
455	1928	lower	1.598	.986	2.276	.867	1.517	1.138	1.138	E = C > R
456	1928	lower	1.453	.806	2.045	.84	1.302	1.302	1.054	C > E = R
457	1928	lower	1.351	.759	2.124	.803	1.29	1.29	1.138	C > E = R
458	1928	upper	1.682	1.034	2.554	.843	1.366	1.48	1.594	R > E > C
459	1928	middle	1.448	.786	2.212	.804	1.427	1.331	1.443	E > R > C
460	1928	upper	1.23	.892	1.675	.921	1.338	1.04	.922	C > E > R
461	1928	upper	1.601	.976	2.492	.831	1.651	1.246	1.365	E > C > R
462	1928	middle	1.455	.805	2.156	.821	1.273	1.273	1.013	C > E = R
463	1928	middle	1.379	.815	2.278	.798	1.271	1.271	1.151	C > E = R
464	1928	middle	1.403	.821	2.009	.85	1.302	1.302	1.217	C > E = R
465	1928	middle	1.293	.724	1.965	.815	1.158	.951	1.179	E > R > C
466	1929	middle	1.458	.908	2.183	.852	1.758	1.333	1.14	C > E > R
467	1929	middle	1.596	1.014	2.226	.881	1.43	1.575	1.394	C > R > E
468	1929	upper	1.452	.79	2.097	.826	1.715	1.416	1.253	C > E > R
469	1929	middle	1.523	.825	2.529	.768	1.65	1.43	1.925	E > R > C
470	1929	middle	1.559	.888	2.221	.844	1.776	1.776	1.127	C > E = R
471	1929	upper	1.293	.737	2.428	.726	1.312	.974	1.103	E > C > R
472	1929	lower	1.379	.734	2.009	.816	1.661	1.661	1.584	C > E = R
473	1929	middle	1.483	.935	1.975	.893	1.559	1.559	1.507	C > E = R
474	1929	middle	1.663	.936	2.399	.836	1.038	1.446	1.208	R > C > E
475	1929	lower	1.393	.807	2.082	.832	1.062	1.062	.807	C > E = R
476	1929	lower	1.45	.85	2.124	.843	1.105	1.105	.977	C > E = R
477	1929	upper	1.361	.757	2.06	.815	1.336	1.251	1.268	E > C > R
478	1929	upper	1.63	.997	2.524	.834	1.398	1.592	1.735	R > E > C
479	1929	middle	1.354	.765	2.124	.806	1.359	1.657	1.572	R > C > E
480	1930	upper	1.392	.796	2.045	.834	1.05	1.557	.995	C > R > E
481	1930	lower	1.373	.769	1.826	.861	1.826	1.826	1.153	C > E = R
482	1930	upper	1.447	.824	2.095	.838	1.683	1.53	1.236	C > E > R
483	1930	upper	1.406	.947	2.144	.867	1.623	1.238	1.021	C > E > R
484	1930	middle	1.234	.644	1.756	.818	1.356	1.356	.956	C > E = R
485	1930	middle	1.541	.941	2.154	.87	1.43	1.538	1.394	C > R > E
486	1930	middle	1.321	.742	1.81	.853	1.502	1.158	1.05	C > E > R
487	1930	middle	1.689	1.072	2.739	.827	1.616	1.412	2.331	E > R > C
488	1930	lower	1.422	.807	2.337	.787	1.359	1.317	1.784	E > R > C
489	1930	lower	1.455	.865	2.499	.782	1.634	1.442	1.922	E > R > C
490	1930	middle	1.691	1.055	2.177	.9	1.463	1.633	1.463	R = C > E
491	1930	middle	1.27	.683	1.947	.799	1.196	1.196	1.196	R = E = C
492	1930	lower	1.409	.792	2.15	.815	1.358	1.273	1.273	E = C > R
493	1930	lower	1.421	.817	2.162	.823	1.393	1.393	1.105	C > E = R
494	1930	middle	1.198	.675	1.507	.879	1.429	1.117	1.351	E > C > R
495	1930	upper	1.469	.851	2.183	.833	1.221	1.344	1.196	C > R > E
496	1930	middle	1.465	.778	2.378	.772	1.444	1.267	1.578	E > R > C
497	1930	upper	1.594	.99	2.61	.817	1.53	1.53	1.912	E = R > C
498	1930	middle	1.663	1.045	2.53	.849	1.591	1.515	1.772	E > R > C
499	1930	middle	1.571	.93	2.389	.832	1.395	1.395	1.379	C > E = R
500	1930	upper	1.346	.85	1.948	.868	1.182	1.019	1.091	E > C > R

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Table 3.1. Basic general and syntactic data across class

class	cases	no.of spaces mean	fun./tr. mean	no.of storeys mean	RRA mean	BDF mean
upper middle (and over)	127	39.4	1.4	3	1.52	.833
middle middle	170	24.1	1.5	2.4	1.475	.826
lower middle (and under)	203	13.8	1.6	2	1.527	.836
all	500	23.8	1.5	2.4	1.508	.832

Table 3.2. Basic general and syntactic data across class and time

Plans published between:

a)1843 and1893

class	cases	no.of spaces mean	fun./tr. mean	no.of storeys mean	RRA mean	BDF mean
upper middle (and over)	31	41.3	1.2	3.3	1.568	.828
middle middle	37	24.4	1.3	2.6	1.541	.828
lower middle (and under)	32	11.3	1.5	2.1	1.541	.833
all	100	25.5	1.3	2.7	1.549	.829
b) 1894 and1914						
upper middle (and over)	52	42.9	1.4	3.4	1.568	.835
middle middle	60	26.6	1.5	2.7	1.487	.826
lower middle (and under)	32	13.7	1.4	2	1.535	.838
all	144	29.6	1.4	2.8	1.527	.832
c) 1915 and1922						
upper middle (and over)	7	28.3	1.4	2.1	1.455	.814
middle middle	15	19.7	1.7	2	1.434	.821
lower middle (and under)	86	14.4	1.6	2	1.535	.836
all	108	16	1.6	2	1.515	.832
d) 1923 and1930						
upper middle (and over)	37	35	1.6	2.4	1.424	.840
middle middle	58	22.3	1.6	2.1	1.433	.827
lower middle (and under)	53	14.6	1.7	1.9	1.500	.837
all	148	22.7	1.6	2.1	1.455	.834

Table 3.3. Basic general and syntactic data across class and type of ground occupation

a) Plans published between 1843 and 1893

status	cases	no.of spaces mean	fun./tr. mean	no.of storeys mean	RRA mean	BDF mean
upper middle	26	41.2	1.3	3.2	1.533	.822
middle middle	18	23.8	1.4	2.4	1.492	.828
lower middle	6	13.2	1.6	2.3	1.480	.832
detached	50	31.6	1.4	2.8	1.512	.825
upper middle	3	41.3	1.3	3.3	1.714	.856
middle middle	13	27.1	1.3	2.8	1.544	.825
lower middle	14	11.2	1.4	2	1.509	.828
semi-detached	30	21.1	1.4	2.5	1.545	.829
upper middle	2	42.5	0.9	5	1.807	.858
middle middle	6	20.5	1	2.8	1.683	.836
lower middle	12	10.5	1.5	2	1.608	.838
terraced	20	16.7	1.3	2.6	1.650	.840
1843-1893 (all)	100	25.5	1.3	2.7	1.549	.829

b) Plans published between 1894 and 1914

upper middle	29	38.2	1.6	2.5	1.408	.824
middle middle	27	26	1.7	2.4	1.445	.822
lower middle	5	14	1.4	2	1.507	.829
detached	61	30.8	1.6	2.4	1.433	.824
upper middle	9	41.4	1.3	3.4	1.573	.826
middle middle	21	25.1	1.4	2.9	1.500	.830
lower middle	15	13.7	1.4	2	1.546	.838
semi-detached	45	24.6	1.4	2.7	1.53	.832
upper middle	14	53.6	1	5.1	1.895	.863
middle middle	12	30.6	1.2	2.8	1.556	.827
lower middle	12	13.7	1.4	2	1.533	.842
terraced	38	33.7	1.2	3.4	1.674	.845
1894-1914 (all)	144	29.6	1.4	2.8	1.527	.832

c) Plans published between 1915 and 1922

status	cases	no.of spaces mean	fun./tr. mean	no.of storeys mean	RRA mean	BDF mean
upper middle	6	29.3	1.4	2.2	1.447	.808
middle middle	10	20.7	1.8	2	1.420	.818
lower middle	5	13	2	1.4	1.324	.778
detached	21	21.3	1.7	1.9	1.405	.805
upper middle	1	22	1.6	2	1.499	.849
middle middle	5	17.8	1.4	2	1.461	.829
lower middle	17	15.9	1.4	2	1.559	.835
semi-detached	23	16.6	1.4	2	1.535	.834
lower middle	64	14.1	1.6	2	1.545	.840
terraced	64	14.1	1.6	2	1.545	.840
1915-1922	108	16	1.6	2	1.515	.832

d) Plans published between 1923 and 1930

upper middle	35	34.7	1.6	2.3	1.420	.841
middle middle	53	22.8	1.6	2.1	1.437	.826
lower middle	8	16.5	1.8	1.9	1.405	.811
detached	96	26.6	1.6	2.2	1.428	.830
upper middle	1	27	1.9	3	1.327	.800
middle middle	5	17.2	1.6	2	1.390	.835
lower middle	21	13.9	1.9	1.9	1.547	.847
semi-detached	27	15	1.9	2	1.510	.843
upper middle	1	54	1.2	4	1.682	.843
lower middle	24	14.6	1.6	2	1.491	.838
terraced	25	16.6	1.6	2.1	1.499	.838
1923-1930 (all)	148	22.7	1.6	2.1	1.455	.834

Table 3.4. Syntactic data on basic day functions accross time

time period	cases	RRA of basic day functions: receiving	eating	cooking
1843-1914	244	1.471	1.398	1.524
1915-1930	256	1.417	1.300	1.353
all	500	1.443	1.348	1.437

Table 3.5. Syntactic data on day functions for 'single-function-centred' types across time

a) all cases

most integrated function	cases	RRA of basic day functions: receiving	eating	cooking
receiving	67	1.413	1.646	1.749
eating	133	1.500	1.229	1.549
cooking	121	1.441	1.411	1.173
	321	1.460	1.385	1.449
receiving + eating	78	1.297	1.297	1.603
eating + cooking	60	1.584	1.193	1.193
receiving + cooking	1	1.463	1.633	1.463
rec.+ eat.+ cooking	40	1.385	1.385	1.385
all	179	1.414	1.283	1.416

b) 1843-1914

most integrated function	cases	RRA of basic day functions: receiving	eating	cooking
receiving	39	1.481	1.716	1.868
eating	62	1.501	1.258	1.583
cooking	53	1.493	1.452	1.225
	154	1.493	1.441	1.532

c) 1915-1930

receiving	28	1.318	1.548	1.583
eating	71	1.499	1.204	1.518
cooking	68	1.401	1.378	1.131
	167	1.429	1.333	1.372

Table 3.6. Distribution of 'single-function-centred' cases across class and time

1843-1930

most integrated function	number of cases per social group upper	middle	lower	subtotal
receiving	20	28	19	67
eating	52	39	42	133
cooking	38	59	24	121
	110	126	85	321

most integrated function	number of cases per social group upper	middle	lower	subtotal
1843-1914				
receiving	14	16	9	39
eating	35	23	4	62
cooking	23	26	4	53
	72	65	17	154
1915-1930				
receiving	6	12	10	28
eating	17	16	38	71
cooking	15	33	20	68
	38	61	68	167

Table 3.7. Basic general and syntactic data on 'single-function-centred' complexes across time

a) From 1843 to 1930

function	cases	Func./ Trans. spaces	mean RRA in the complex av.	min.	max.	BDF value
receiving	67	1.4	1.607	1.149	2.594	.838
eating	133	1.5	1.514	.987	2.206	.829
cooking	121	1.6	1.407	1.082	1.8	.825
	321	1.5	1.493	.987	2.594	.829

b) From 1843 to 1914

function	cases	Func./ Trans. spaces	mean RRA in the complex av.	min.	max.	BDF value
receiving	39	1.3	1.678	1.149	2.594	.850
eating	62	1.3	1.527	.987	2.206	.824
cooking	53	1.5	1.444	1.117	1.8	.826
	154	1.4	1.537	.987	2.594	.832

c) From 1915 to 1930

function	cases	Func./ Trans. spaces	mean RRA in the complex av.	min.	max.	BDF value
receiving	28	1.5	1.507	1.242	1.79	.822
eating	71	1.6	1.503	1.198	1.946	.832
cooking	68	1.6	1.377	1.082	1.66	.824
	167	1.6	1.453	1.082	1.946	.827

Table 3.8. Syntactic data on basic day functions across class

		RRA of basic day functions		
status	cases	receiving	eating	cooking
upper middle (and over)	127	1.457	1.364	1.49
middle middle	170	1.43	1.413	1.446
lower middle (and under)	203	1.445	1.284	1.396
all	500	1.443	1.348	1.437

Table 3.9. Syntactic data on basic day functions across class and time

Plans published between:

a)1843 and1893

		RRA of main day functions		
status	cases	receiving	eating	cooking
upper middle (and over)	31	1.455	1.375	1.577
middle middle	37	1.473	1.487	1.558
lower middle (and under)	32	1.424	1.330	1.475
all	100	1.452	1.402	1.537

b) 1894 and1914

upper middle (and over)	52	1.510	1.413	1.579
middle middle	60	1.487	1.435	1.513
lower middle (and under)	32	1.437	1.296	1.417
all	144	1.484	1.396	1.516

c) 1915 and1922

upper middle (and over)	7	1.316	1.323	1.327
middle middle	15	1.284	1.313	1.375
lower middle (and under)	86	1.489	1.264	1.409
all	108	1.449	1.275	1.399

d) 1923 and1930

upper middle (and over)	37	1.409	1.294	1.323
middle middle	58	1.384	1.369	1.323
lower middle (and under)	53	1.392	1.280	1.313
all	148	1.393	1.318	1.319

Table 3.10. Frequency distribution of genotypes

a)All plans

Element:	Count:	Percent:	
R > E > C	32	6.4	
R > C > E	22	4.4	
E > R > C	73	14.6	
E > C > R	58	11.6	
C > R > E	19	3.8	
C > E > R	25	5	
E = R > C	78	15.6	- Mode
R > E = C	13	2.6	
R = C > E	1	.2	
E > R = C	2	.4	
E = C > R	60	12	
C > E = R	77	15.4	
R = E = C	40	8	

proportion of most integrated space being used for:
Receiving: 13.4% Receiving and Eating: 15.6%
Eating: 26.6% Eating and Cooking: 12.0%
Cooking: 24.2%

Eating and/or receiving: 55.6%; Eating and/or Cooking: 62.8%

b) **Plans with no amalgamated functions**

(346 cases)

Element:	Count:	Percent:	
R > E > C	32	9.249	
R > C > E	22	6.358	
E > R > C	73	21.098	- Mode
E > C > R	58	16.763	
C > R > E	19	5.491	
C > E > R	25	7.225	
E = R > C	46	13.295	
R > E = C	1	.289	
R = C > E	1	.289	
E > R = C	2	.578	
E = C > R	6	1.734	
C > E = R	56	16.185	
R = E = C	5	1.445	

proportion of most integrated space being used for:
Receiving: 15.9% Receiving and Eating: 13.3%
Eating: 38.4% Eating and Cooking: 1.7%
Cooking: 28.9% no inequality 1.4%

Eating and/or receiving: 67.6%; Eating and/or Cooking: 69.1%

Plans with amalgamated functions

(154 cases)

Element:	Count:	Percent:	
R > E > C	0	0	
R > C > E	0	0	
E > R > C	0	0	
E > C > R	0	0	
C > R > E	0	0	
C > E > R	0	0	
E = R > C	32	20.779	
R > E = C	12	7.792	
R = C > E	0	0	
E > R = C	0	0	
E = C > R	54	35.065	- Mode
C > E = R	21	13.636	
R = E = C	35	22.727	

Receiving: 7.8% Receiving and Eating: 20.8%
Eating: none Eating and Cooking: 35.1%
Cooking: 13.6% no inequality 22.7%

Eating and/or receiving: 28.6%; Eating and/or Cooking: 48.7%

Table 3.11. Frequency distribution of genotypes across time

a) 1843-1893

(100 cases)

Element:	Count:	Percent:	
R > E > C	8	8	
R > C > E	4	4	
E > R > C	17	17	
E > C > R	5	5	
C > R > E	2	2	
C > E > R	4	4	
E = R > C	28	28	- Mode
R > E = C	3	3	
R = C > E	0	0	
E > R = C	0	0	
E = C > R	12	12	
C > E = R	13	13	
R = E = C	4	4	

proportion of most integrated space being used for:

Receiving: 15% Receiving and Eating: 28%
Eating: 22% Eating and Cooking: 12%
Cooking: 19% no inequality 4%

Eating and/or receiving: 65%; Eating and/or Cooking: 53%

b) 1894-1914

(144 cases)

Element:	Count:	Percent:	
R > E > C	14	9.722	
R > C > E	6	4.167	
E > R > C	22	15.278	
E > C > R	18	12.5	
C > R > E	7	4.861	
C > E > R	9	6.25	
E = R > C	25	17.361	- Mode
R > E = C	4	2.778	
R = C > E	0	0	
E > R = C	0	0	
E = C > R	14	9.722	
C > E = R	18	12.5	
R = E = C	7	4.861	

Receiving: 16.7% Receiving and Eating: 17.4%
Eating: 27.8% Eating and Cooking: 9.7%
Cooking: 23.6% no inequality 4.9%

Eating and/or receiving: 61.8%; Eating and/or Cooking: 61.1%

c) 1915-1922

(108 cases)

Element:	Count:	Percent:	
R > E > C	4	3.704	
R > C > E	6	5.556	
E > R > C	16	14.815	
E > C > R	17	15.741	
C > R > E	1	.926	
C > E > R	0	0	
E = R > C	11	10.185	
R > E = C	5	4.63	
R = C > E	0	0	
E > R = C	2	1.852	
E = C > R	21	19.444	- Mode
C > E = R	12	11.111	
R = E = C	13	12.037	

proportion of most integrated space being used for:

Receiving: 13.9% Receiving and Eating: 10.2%
Eating: 32.4% Eating and Cooking: 19.4%
Cooking: 12.0% no inequality 12.0%

Eating and/or receiving: 56.5%; Eating and/or Cooking: 63.9%

d) 1923-1930

(148 cases)

Element:	Count:	Percent:	
R > E > C	6	4.054	
R > C > E	6	4.054	
E > R > C	18	12.162	
E > C > R	18	12.162	
C > R > E	9	6.081	
C > E > R	12	8.108	
E = R > C	14	9.459	
R > E = C	1	.676	
R = C > E	1	.676	
E > R = C	0	0	
E = C > R	13	8.784	
C > E = R	34	22.973	- Mode
R = E = C	16	10.811	

Receiving: 8.7% Receiving and Eating: 9.5%
Eating: 24.3% Eating and Cooking: 8.8%
Cooking: 37.2% no inequality 10.8%

Eating and/or receiving: 42.6%; Eating and/or Cooking: 70.3%

Table 3.12. Frequency distribution of genotypes in **upper middle** class houses

Plans with no amalgamated functions:

1843-1893

(30 cases)

Element:	Count:	Percent:	
R > E > C	3	10	
R > C > E	1	3.333	
E > R > C	10	33.333	- Mode
E > C > R	2	6.667	
C > R > E	0	0	
C > E > R	3	10	
E = R > C	7	23.333	
R > E = C	0	0	
R = C > E	0	0	
E > R = C	0	0	
E = C > R	0	0	
C > E = R	4	13.333	
R = E = C	0	0	

proportion of most integrated space being used for:
Receiving: 13.3% Receiving and Eating: 23.3%
Eating: 40 % Eating and Cooking: none
Cooking: 23.3%

Eating and/or receiving: 76.7%; Eating and/or Cooking: 63.3%

Plans with amalgamated functions:

(1 case)

Element:	Count:	Percent:	
R > E > C	0	0	
R > C > E	0	0	
E > R > C	0	0	
E > C > R	0	0	
C > R > E	0	0	
C > E > R	0	0	
E = R > C	1	100	- Mode
R > E = C	0	0	
R = C > E	0	0	
E > R = C	0	0	
E = C > R	0	0	
C > E = R	0	0	
R = E = C	0	0	

1894-1914

(52 cases)

Element:	Count:	Percent:	
R > E > C	10	19.231	
R > C > E	0	0	
E > R > C	11	21.154	
E > C > R	12	23.077	- Mode
C > R > E	7	13.462	
C > E > R	3	5.769	
E = R > C	1	1.923	
R > E = C	0	0	
R = C > E	0	0	
E > R = C	0	0	
E = C > R	1	1.923	
C > E = R	6	11.538	
R = E = C	1	1.923	

proportion of most integrated space being used for:
Receiving: 19.2% Receiving and Eating: 1.9%
Eating: 44.2% Eating and Cooking: 1.9%
Cooking: 30.7%

Eating and/or receiving: 65.4%; Eating and/or Cooking: 76.9%

Plans with amalgamated functions: none

1923-1930

(37 cases)

Element:	Count:	Percent:	
R > E > C	5	13.514	
R > C > E	0	0	
E > R > C	2	5.405	
E > C > R	13	35.135	- Mode
C > R > E	4	10.811	
C > E > R	8	21.622	
E = R > C	4	10.811	
R > E = C	0	0	
R = C > E	0	0	
E > R = C	0	0	
E = C > R	0	0	
C > E = R	1	2.703	
R = E = C	0	0	

proportion of most integrated space being used for:
Receiving: 13.5% Receiving and Eating: 10.8%
Eating: 40.5% Eating and Cooking: none
Cooking: 35.1%

Eating and/or receiving: 64.9%; Eating and/or Cooking: 75.7%

Plans with amalgamated functions: none

Table 3.13. Frequency distribution of genotypes in **middle middle** class houses

Plans with no amalgamated functions: | Plans with amalgamated functions:

1843-1893

Plans with no amalgamated functions (37 cases)

Element:	Count:	Percent:
R > E > C	5	13.514
R > C > E	2	5.405
E > R > C	5	13.514
E > C > R	3	8.108
C > R > E	2	5.405
C > E > R	1	2.703
E = R > C	11	29.73 - Mode
R > E = C	0	0
R = C > E	0	0
E > R = C	0	0
E = C > R	1	2.703
C > E = R	7	18.919
R = E = C	0	0

proportion of most integrated space being used for:
Receiving: 18.9% Receiving and Eating: 29.7%
Eating: 21.6% Eating and Cooking: 2.7%
Cooking: 27 %

Eating and/or receiving: 70.3%; Eating and/or Cooking: 51.3%

Plans with amalgamated functions: none

1894-1914

Plans with no amalgamated functions (59 cases)

Element:	Count:	Percent:
R > E > C	3	5.085
R > C > E	6	10.169
E > R > C	10	16.949
E > C > R	5	8.475
C > R > E	0	0
C > E > R	6	10.169
E = R > C	17	28.814 - Mode
R > E = C	0	0
R = C > E	0	0
E > R = C	0	0
E = C > R	2	3.39
C > E = R	10	16.949
R = E = C	0	0

proportion of most integrated space being used for:
Receiving: 15.2% Receiving and Eating: 28.8%
Eating: 25.4% Eating and Cooking: 3.4%
Cooking: 27.1%

Eating and/or receiving: 69.5%; Eating and/or Cooking: 55.9%

Plans with amalgamated functions (1 case)

Element:	Count:	Percent:
R > E > C	0	0
R > C > E	0	0
E > R > C	0	0
E > C > R	0	0
C > R > E	0	0
C > E > R	0	0
E = R > C	0	0
R > E = C	0	0
R = C > E	0	0
E > R = C	0	0
E = C > R	1	100 - Mode
C > E = R	0	0
R = E = C	0	0

1923-1930

Plans with no amalgamated functions (66 cases)

Element:	Count:	Percent:
R > E > C	1	1.887
R > C > E	6	11.321
E > R > C	9	16.981
E > C > R	4	7.547
C > R > E	5	9.434
C > E > R	3	5.66
E = R > C	4	7.547
R > E = C	0	0
R = C > E	1	1.887
E > R = C	0	0
E = C > R	0	0
C > E = R	18	33.962 - Mode
R = E = C	2	3.774

proportion of most integrated space being used for:
Receiving: 13.2% Receiving and Eating: 7.5%
Eating: 24.5% Eating and Cooking: none
Cooking: 49 %

Eating and/or receiving: 45.3%; Eating and/or Cooking: 73.6%

Plans with amalgamated functions (5 cases)

Element:	Count:	Percent:
R > E > C	0	0
R > C > E	0	0
E > R > C	0	0
E > C > R	0	0
C > R > E	0	0
C > E > R	0	0
E = R > C	2	40
R > E = C	0	0
R = C > E	0	0
E > R = C	0	0
E = C > R	0	0
C > E = R	3	60 - Mode
R = E = C	0	0

Receiving: none Receiving and Eating: 40%
Eating: none Eating and Cooking: none
Cooking: 60%

Eating and/or receiving: 40%; Eating and/or Cooking: 60%

Table 3.14. Frequency distribution of genotypes in **lower middle** class houses

All plans

1843-1893 — All plans: (32 cases)

Element:	Count:	Percent:	
R > E > C	0	0	
R > C > E	1	3.125	
E > R > C	2	6.25	
E > C > R	0	0	
C > R > E	0	0	
C > E > R	0	0	
E = R > C	9	28.125	
R > E = C	3	9.375	
R = C > E	0	0	
E > R = C	0	0	
E = C > R	11	34.375	-Mode
C > E = R	2	6.25	
R = E = C	4	12.5	

1894-1914 — (32 cases)

Element:	Count:	Percent:	
R > E > C	1	3.125	
R > C > E	0	0	
E > R > C	1	3.125	
E > C > R	1	3.125	
C > R > E	0	0	
C > E > R	0	0	
E = R > C	7	21.875	
R > E = C	4	12.5	
R = C > E	0	0	
E > R = C	0	0	
E = C > R	10	31.25	-Mode
C > E = R	2	6.25	
R = E = C	6	18.75	

1915-1922 — (86 cases)

Element:	Count:	Percent:	
R > E > C	2	2.326	
R > C > E	2	2.326	
E > R > C	13	15.116	
E > C > R	15	17.442	
C > R > E	0	0	
C > E > R	0	0	
E = R > C	8	9.302	
R > E = C	5	5.814	
R = C > E	0	0	
E > R = C	2	2.326	
E = C > R	19	22.093	-Mode
C > E = R	7	8.14	
R = E = C	13	15.116	

1923-1930 — (53 cases)

Element:	Count:	Percent:	
R > E > C	0	0	
R > C > E	0	0	
E > R > C	7	13.208	
E > C > R	1	1.887	
C > R > E	0	0	
C > E > R	1	1.887	
E = R > C	4	7.547	
R > E = C	1	1.887	
R = C > E	0	0	
E > R = C	0	0	
E = C > R	13	24.528	
C > E = R	12	22.642	
R = E = C	14	26.415	-Mode

Receiving and *eating* amalgamated in one room:

1843-1893 — (14 cases)

E = R > C	9	64.286	-Mode
R > E = C	0	0	
R = C > E	0	0	
E > R = C	0	0	
E = C > R	0	0	
C > E = R	2	14.286	
R = E = C	3	21.429	

1894-1914 — (8 cases)

E = R > C	7	87.5	-Mode
R > E = C	0	0	
R = C > E	0	0	
E > R = C	0	0	
E = C > R	0	0	
C > E = R	1	12.5	
R = E = C	0	0	

1915-1922 — (14 cases)

E = R > C	8	57.143	-Mode
R > E = C	0	0	
R = C > E	0	0	
E > R = C	0	0	
E = C > R	0	0	
C > E = R	3	21.429	
R = E = C	3	21.429	

1923-1930 — (16 cases)

E = R > C	4	25	
R > E = C	0	0	
R = C > E	0	0	
E > R = C	0	0	
E = C > R	0	0	
C > E = R	12	75	-Mode
R = E = C	0	0	

Eating and *cooking* amalgamated in one room:

1843-1893 — (14 cases)

E = R > C	0	0	
R > E = C	3	21.429	
R = C > E	0	0	
E > R = C	0	0	
E = C > R	11	78.571	-Mode
C > E = R	0	0	
R = E = C	0	0	

1894-1914 — (14 cases)

E = R > C	0	0	
R > E = C	3	21.429	
R = C > E	0	0	
E > R = C	0	0	
E = C > R	10	71.429	-Mode
C > E = R	0	0	
R = E = C	1	7.143	

1915-1922 — (31 cases)

E = R > C	0	0	
R > E = C	5	16.129	
R = C > E	0	0	
E > R = C	0	0	
E = C > R	19	61.29	-Mode
C > E = R	0	0	
R = E = C	7	22.581	

1923-1930 — (18 cases)

E = R > C	0	0	
R > E = C	1	5.556	
R = C > E	0	0	
E > R = C	0	0	
E = C > R	12	66.667	-Mode
C > E = R	0	0	
R = E = C	5	27.778	

No amalgamated functions:

1843-1893 — (3 cases)

Element:	Count:	Percent:	
R > E > C	0	0	
R > C > E	1	33.333	
E > R > C	2	66.667	-Mode
E > C > R	0	0	
C > R > E	0	0	
C > E > R	0	0	
E = R > C	0	0	
R > E = C	0	0	
R = C > E	0	0	
E > R = C	0	0	
E = C > R	0	0	
C > E = R	0	0	
R = E = C	0	0	

1894-1914 — (6 cases)

Element:	Count:	Percent:
R > E > C	1	16.667
R > C > E	0	0
E > R > C	1	16.667
E > C > R	1	16.667
C > R > E	0	0
C > E > R	0	0
E = R > C	0	0
R > E = C	1	16.667
R = C > E	0	0
E > R = C	0	0
E = C > R	0	0
C > E = R	1	16.667
R = E = C	1	16.667

1915-1922 — (39 cases)

Element:	Count:	Percent:	
R > E > C	2	5.128	
R > C > E	2	5.128	
E > R > C	13	33.333	
E > C > R	15	38.462	-Mode
C > R > E	0	0	
C > E > R	0	0	
E = R > C	0	0	
R > E = C	0	0	
R = C > E	0	0	
E > R = C	2	5.128	
E = C > R	0	0	
C > E = R	4	10.256	
R = E = C	1	2.564	

1923-1930 — (10 cases)

Element:	Count:	Percent:	
R > E > C	0	0	
R > C > E	0	0	
E > R > C	7	70	-Mode
E > C > R	1	10	
C > R > E	0	0	
C > E > R	1	10	
E = R > C	0	0	
R > E = C	0	0	
R = C > E	0	0	
E > R = C	0	0	
E = C > R	1	10	
C > E = R	0	0	
R = E = C	0	0	

proportion of most integrated space being used for:

	1843-1893	1894-1914	1915-1922	1923-1930
Receiving:	33.3%	33.4%	10.2%	none
Eating:	66.7%	33.4%	76.9%	80%
Cooking:	none	16.7%	10.2%	10%
Receiving and Eating:	none	none	none	none
Eating and Cooking:	none	none	none	10%
no inequality:	none	16.7%	2.6%	none

1843-1893: Eating and/or receiving: 100%; Eating and/or Cooking: 66.7%

1894-1914: Eating and/or receiving: 66.7%; Eating and/or Cooking: 50%

1915-1922: Eating and/or receiving: 87.2%; Eating and/or Cooking: 87.2%

1923-1930: Eating and/or receiving: 80%; Eating and/or Cooking: 100%

Table 3.15. Basic general and syntactic data of prevailing inequality genotypes across class, 1843-1893

upper			RRA	BDF	no.of cases			no.of spaces				storeys	no.of rec.rooms			no.of service rooms			no.of bedrooms		
								total	funct.	trans.	fn./tr.										
	cases	%	mean	mean	det.	semi-	terr.	mean	mean	mean	mean.	mean	min.	max.	mean	min.	max.	mean	min.	max.	mean
E > R > C	10	32.2	1.509	.828	10	0	0	42.1	18.4	16.9	1.2	3.2	3	4	3.3	2	4	3	4	9	7
E = R > C	8	25.8	1.691	.832	6	1	1	33.2	15.4	13.2	1.4	3.4	1	3	2.7	2	4	2.6	4	9	6
genotypes	18	58	1.590	.830	16	1	1	38.2	17.1	15.3	1.3	3.3	1	4	3.1	2	4	2.8	4	9	6.6
non-genotypes	13	42	1.538	.824	10	2	1	45.7	19.2	19.1	1.2	3.4	3	7	3.7	2	5	2.7	4	14	7.8
all	31	100	1.568	.828	26	3	2	41.3	18	16.9	1.2	3.3	1	7	3.3	2	5	2.8	4	14	7.1
middle																					
E = R > C	11	29.7	1.504	.830	8	3	0	28.2	12.7	10.9	1.3	2.8	2	3	2.2	1	3	2.1	3	7	4.8
C > E = R	7	18.9	1.471	.835	4	3	0	21.6	11	7.3	1.6	2.3	2	2	2	2	2	2	3	6	4.4
genotypes	18	48.6	1.491	.832	12	6	0	25.6	12.1	9.5	1.4	2.6	2	3	2.1	1	3	2.1	3	7	4.7
non-genotypes	19	51.4	1.588	.825	6	7	6	23.3	10.6	9.3	1.2	2.6	2	2	2	1	3	2	3	7	4.5
all	37	100	1.541	.828	18	13	6	24.4	11.3	9.4	1.3	2.6	2	3	2	1	3	2	3	7	4.6
lower																					
E/R > C	9	28.1	1.575	.841	1	5	3	11.1	4.8	3.8	1.3	2	1	1	1	1	1	1	2	3	2.8
E/C > R	11	34.4	1.495	.820	2	5	4	11.9	5.9	4.3	1.4	2.1	1	1	1	1	2	1.9	2	3	2.9
genotypes	20	62.5	1.531	.829	3	10	7	11.5	5.4	4	1.4	2	1	1	1	1	2	1.5	2	3	2.8
non-genotypes	12	41.2	1.556	.838	3	4	5	10.9	5.8	4	1.5	2.1	0	2	1.2	1	2	1.2	1	4	2.7
all	32	100	1.541	.833	6	14	12	11.3	5.4	3.9	1.5	2.1	0	2	1.1	1	2	1.4	1	4	2.8
1843-1893																					
all	100		1.549	.829	50	30	20	25.5	11.5	10	1.3	2.7	0	7	2.1	1	5	2.1	1	14	4.8

Table 3.16. Basic general and syntactic data of prevailing inequality genotypes across class, 1894-1914

Plans published between 1894 and 1914

upper	cases	%	RRA mean	BDF mean	no.of cases det.	semi-	terr.	no.of spaces total mean	funct. mean	trans. mean	fn./tr. mean.	storeys mean	no.of rec.rooms min.	max.	mean	no.of service rooms min.	max.	mean	no.of bedrooms min.	max.	mean
R > E > C	10	19.2	1.940	.860	2	1	7	50.9	21.9	23.1	1	4.9	3	5	3.6	3	6	4.2	3	10	6.9
E > R > C	11	21.1	1.607	.848	4	1	6	49.1	21.5	18.6	1.4	3.1	2	4	3.1	3	5	3.9	4	10	7.2
E > C > R	12	23.1	1.428	.820	9	5	0	39.2	19.1	14.1	1.5	2.7	3	5	3.4	2	6	3.5	4	8	6.5
genotypes	33	63.4	1.643	.842	16	7	13	46.1	20.7	18.3	1.3	3.8	2	5	3.4	3	6	3.8	3	10	6.8
non-genotypes	19	36.6	1.438	.823	15	3	1	37.4	18.3	13.5	1.6	2.6	2	6	3.3	2	8	3.5	4	14	6.7
all	52	100	1.568	.835	31	10	14	42.9	19.8	16.6	1.4	3.4	2	6	3.3	2	8	3.7	3	14	6.8
middle																					
E > R > C	10	16.6	1.519	.821	3	4	3	29.3	14.1	10.6	1.4	3	2	3	2.1	2	3	2.5	5	8	5.6
E = R > C	17	28.3	1.510	.827	6	8	3	24.9	11.9	9	1.5	2.6	2	3	2.2	2	3	2.1	4	6	4.9
C > E = R	10	16.6	1.448	.839	4	2	4	24.9	12.5	8.7	1.5	2.4	2	3	2.2	2	3	2.3	4	8	5
genotypes	37	61.5	1.496	.829	13	14	10	26.1	12.6	9.3	1.4	2.7	2	3	2.2	2	3	2.2	4	8	5.1
non-genotypes	23	37.5	1.472	.821	14	5	2	27.4	13.3	9.7	1.5	2.6	2	3	2.3	1	3	2.1	3	8	5.3
all	60	100	1.487	.826	27	19	12	26.6	12.9	9.5	1.5	2.7	2	3	2.2	1	3	2.2	3	8	5.2
lower																					
E/R > C	7	21.9	1.668	.831	0	5	2	12.1	4.9	3.7	1.4	2	1	1	1	1	1	1	1	3	2.3
E/C > R	10	31.2	1.501	.836	2	3	5	14.9	7.4	5.2	1.5	2	1	1	1	1	2	1.6	2	4	3.2
genotypes	17	53.1	1.570	.834	2	8	7	13.8	6.3	4.6	1.4	2	1	1	1	1	2	1.3	1	4	2.8
non-genotypes	15	46.9	1.495	.843	3	7	5	13.7	6.7	4.9	1.4	2	0	2	1.1	1	2	1.2	3	4	3.1
all	32	100	1.535	.838	5	15	12	13.7	6.5	4.7	1.4	2	0	2	1.1	1	2	1.3	1	4	2.9
1894-1914																					
all	144		1.527	.832	61	45	38	29.6	14	11	1.4	2.8	0	6	2.4	1	8	2.5	1	14	5.3

Table 3.17. Basic general and syntactic data of prevailing inequality genotypes, 1915-1922

Plans published between 1915 and 1922

lower			RRA	BDF	no.of cases			no.of spaces				storeys	no.of rec.rooms			no.of service rooms			no.of bedrooms		
								total	funct.	trans.	fn./tr.										
	cases	%	mean	mean	det.	semi-	terr.	mean	mean	mean	mean.	mean	min.	max.	mean	min.	max.	mean	min.	max.	mean
E > C > R	15	17.4	1.609	.848	0	2	13	14.9	7.4	4.7	1.6	2	2	2	2	1	1	1	2	4	2.9
E/C > R	19	22.1	1.591	.846	2	5	12	14.6	7	4.9	1.5	1.9	1	1	1	1	2	1.2	2	3	2.6
genotypes	34	39.5	1.599	.847	2	7	25	14.8	7.2	4.8	1.5	2	1	2	1.4	1	2	1.1	2	4	2.7
non-genotypes	52	60.5	1.493	.828	3	10	39	14.1	7	4.5	1.6	2	0	2	1.4	1	2	1	2	4	2.9
all	86	100	1.535	.836	5	17	64	14.4	7.1	4.6	1.6	2	0	2	1.4	1	2	1	2	4	2.8
1915-1922																					
all	108		1.515	.832	21	23	64	16	7.8	5.2	1.6	2	0	3	1.6	1	4	1.2	2	5	3

Table 3.18. Basic general and syntactic data of prevailing inequality genotypes across class, 1923-1930

Plans published between 1923 and 1930

upper			RRA	BDF	no.of cases			no.of spaces total	funct.	trans.	fn./tr.	storeys	no.of rec.rooms			no.of service rooms			no.of bedrooms		
	cases	%	mean	mean	det.	semi-	terr.	mean	mean	mean	mean.	mean	min.	max.	mean	min.	max.	mean	min.	max.	mean
E > C > R	13	35.1	1.416	.845	13	0	0	38.5	19.2	13.1	1.6	2.4	2	4	3	2	4	2.8	3	9	6
C > E > R	8	21.6	1.365	.848	7	1	0	36.6	17.5	12.4	1.5	2.4	2	4	2.9	2	3	2.7	5	9	6.2
genotypes	21	56.7	1.396	.846	20	1	0	37.8	18.6	12.9	1.5	2.4	2	4	2.9	2	4	2.8	3	9	6.1
non-genotypes	16	43.3	1.461	.832	15	0	1	31.5	16.4	9.9	1.7	2.4	2	4	2.9	2	4	2.7	4	7	5.8
all	37	100	1.424	.840	35	1	1	35	17.6	11.6	1.6	2.4	2	4	2.9	2	4	2.7	3	9	6
middle																					
C > E = R	21	36.2	1.400	.827	20	1	0	21.4	10.6	6.7	1.6	2	1	3	2	1	3	1.5	3	5	3.8
non-genotypes	37	63.8	1.452	.827	33	4	0	22.8	11.1	7.7	1.5	2.1	1	4	2.2	1	2	1.4	3	6	4.1
all	58	100	1.433	.827	53	5	0	22.3	10.9	7.3	1.6	2.1	1	4	2.1	1	3	1.4	3	6	4
lower																					
E = C > R	13	24.5	1.556	.860	0	5	8	14.8	7.7	4.8	1.9	1.9	1	2	1.1	1	2	1.3	3	4	3.1
C > E/R	12	22.6	1.355	.807	3	5	4	15.2	7.1	4.9	1.6	1.9	1	1	1	1	1	1	2	6	3.1
R = E/C	14	26.4	1.497	.847	3	6	5	13.9	6.6	4.4	1.9	1.9	0	1	0.4	1	1	1	2	4	2.9
genotypes	39	73.5	1.473	.839	6	16	17	14.6	7.1	4.7	1.8	1.9	0	2	0.8	1	2	1.1	2	6	3
non-genotypes	14	28.6	1.577	.833	2	5	7	14.5	6.9	4.6	1.6	2	1	2	1.6	1	1	1	2	3	2.8
all	53	100	1.500	.837	8	21	24	14.6	7.1	4.7	1.7	1.9	0	2	1	1	2	1.1	2	6	3
1923-1930																					
all	148		1.455	.834	96	27	25	22.7	11.2	7.4	1.6	2.1	0	4	1.9	1	4	1.6	2	9	4.1
1843-1930																					
all	500		1.508	.832	228	125	147	23.8	11.3	8.5	1.5	2.4	0	7	2	1	8	1.9	1	14	4.4

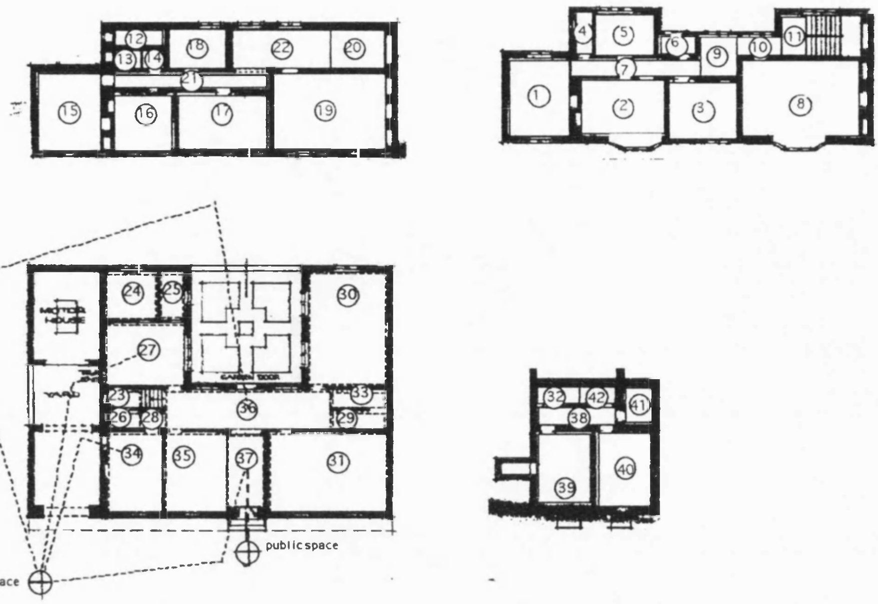
Table 3.19. Basic general and syntactic data on genotypes that prevail in middling complexes

prewar			RRA	BDF	no.of spaces			fn./tr.	no.of storeys		
	cases	%	mean	mean	mean	min.	max	mean.	mean	min.	max.
E = R > C	53		1.571	.831	22.9	8	56	1.4	2.6	2	5
E > R > C	39		1.554	.831	36.8	10	75	1.3	3.3	2	6
C > E = R	31		1.43	.827	25.8	9	60	1.6	2.4	2	4
E > C > R	23		1.48	.812	37.6	13	94	1.3	2.7	2	4
E = C > R	26		1.49	.827	15.1	9	26	1.5	2.1	2	3
genotypes	172		1.517	.827	27.4	8	94	1.4	2.7	2	6
upper	83		1.568	.832	42.3	19	102	1.3	3.4	2	6
middle	97		1.507	.827	25.8	15	56	1.4	2.6	2	4
lower	64		1.538	.835	12.5	7	24	1.5	2	2	3
	244		1.536	.831	27.9	7	102	1.4	2.7	2	6
wartime and postwar											
C > E = R	46		1.367	.815	18.6	9	29	1.7	2	1	3
E > C > R	35		1.502	.843	24.3	12	52	1.6	2.1	2	3
E = C > R	34		1.573	.852	15.3	8	32	1.7	1.9	1	2
	115		1.469	.834	19.4	8	52	1.7	2	1	3
upper	44		1.429	.836	40	18	54	1.6	2.4	2	4
middle	73		1.433	.826	21.8	13	38	1.6	2.1	1	3
lower	138		1.522	.836	14.4	8	24	1.7	2	1	3
	256		1.48	.833	19.9	8	54	1.6	2.1	1	4
all	500		1.508	.832	23.8	7	102	1.5	2.4	1	6

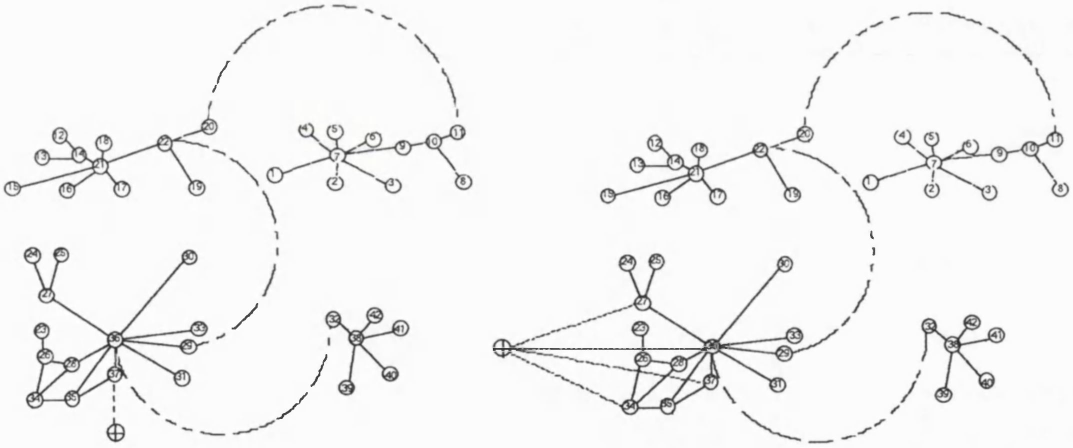
CHAPTER 4

Figure 4. Example of procedure applied to selected plans

Minimal living complex of spaces linked to the exterior: (1) through the front door (*minimal living plus public space*) and; (2) via all entrances (*minimal living plus carrier*)



access graph of *minimal living plus public space* access graph of *minimal living plus carrier*



permeability graph rooted from the public space permeability graph rooted from a carrier space

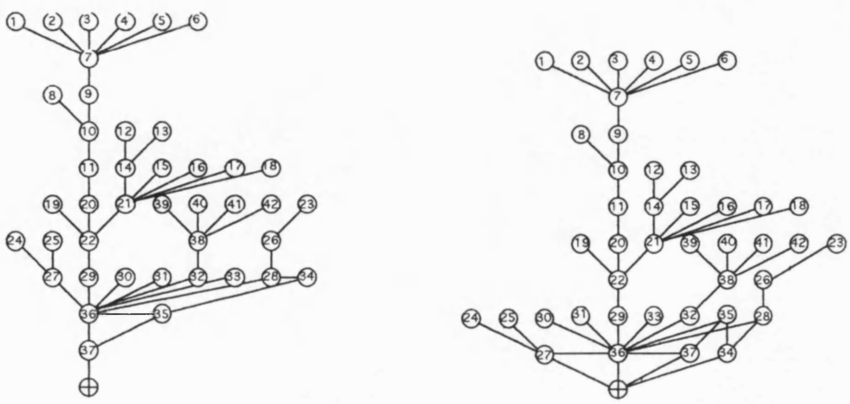
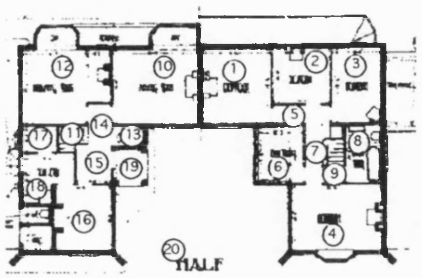
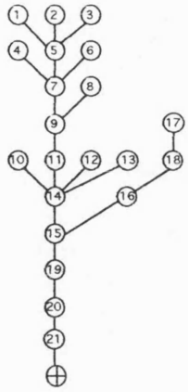


Figure 4.1. Prewar British plans

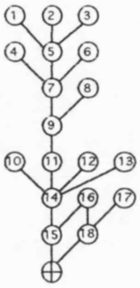
a) *House 153*



from the public space

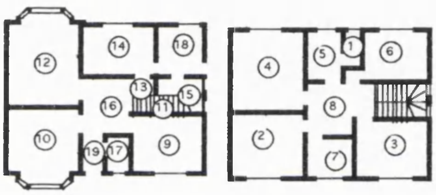


from a carrier space

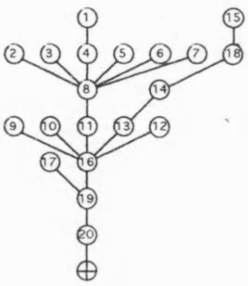


landing	St.	T	T	hall	T	bath	drawing	cloaks	dining	box	bed	kitchen	bed	bed	bed	scullery	larder*
9 =	11 >	14 >	7 >	15 >	5 >	8 >	12 =	13 =	10 >	6 =	4 >	16 >	3 =	2 =	1 =	18 >	17

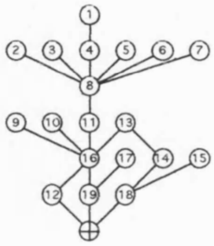
b) *House 116*



from the public space

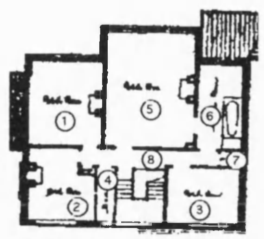


from a carrier space

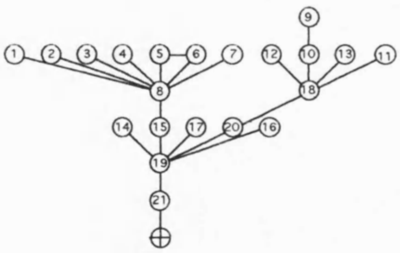


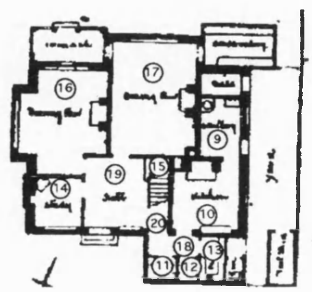
hall	St.	landing	T	lobby	brkfst.	dining	drawing	bath	bed	bed	dress.	bed	bed	kitchen	coats	wc	scullery	larder*
16 >	11 >	8 >	13 >	19 >	9 =	12 =	10 >	4 >	3 =	2 =	7 =	6 =	5 >	14 >	17 >	1 >	18 >	15

c) *House 86*

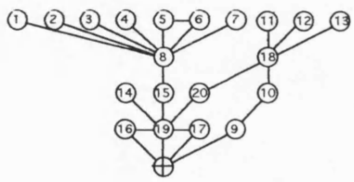


from the public space





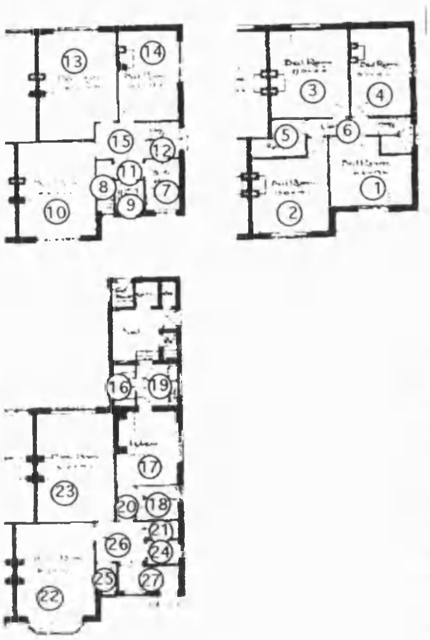
from a carrier space



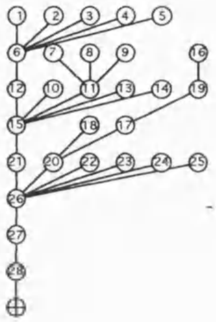
hall	St.	landing	T	T	study	drawing	dining	bed	bath	bed	bed	wc	bed	box	kitchen	store	pantry	store	scullery*
19 >	15 >	8 =	20 >	18 >	14 =	16 =	17 >	5 =	6 >	1 =	4 =	7 =	2 =	3 >	10 >	11 =	13 =	12 >	9

*spaces arrayed in ascending order of RRA values (minimal living complex)

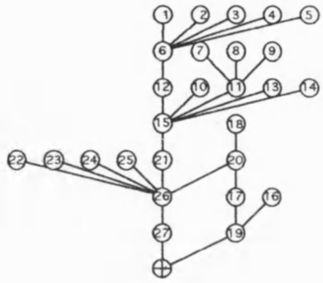
a) *House 77*



from the public space



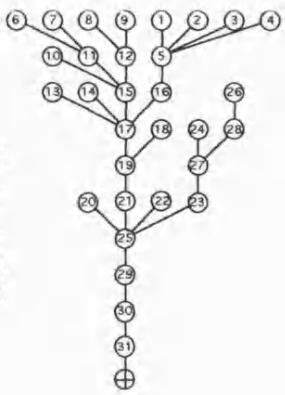
from a carrier space



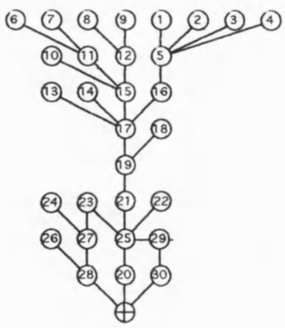
landing 15 > St 21 > hall 26 > st. 12 > T 11 > bed 10 = T 20 = bed 14 = bed 13 > T 6 > store 25 = cloaks 24 = drawing 22 = dining 23 = porch 27 > wc 8 = linen 9 = bath 7 > kitchen 17 > pantry 18 > box 5 = bed 4 = bed 1 = bed 2 = bed 3 > scullery 19 > larder* 16

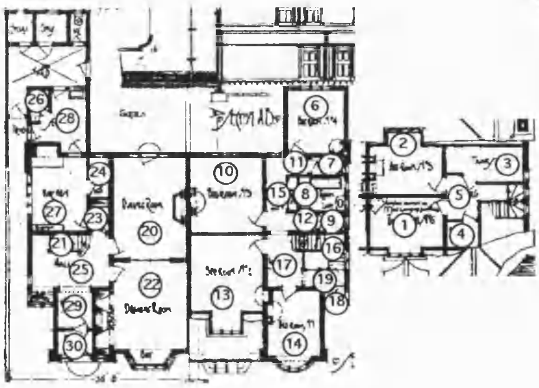
b) *House 134*

from the public space



from a carrier space



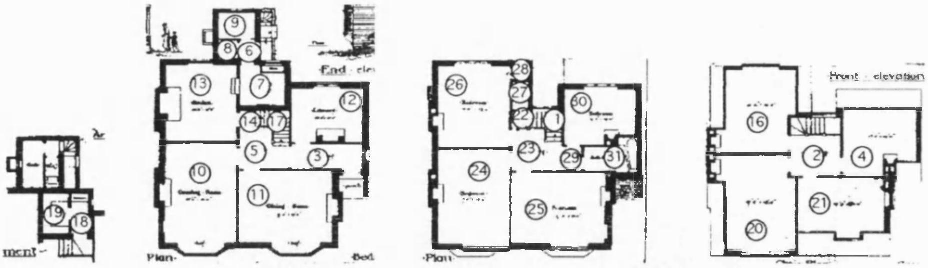


landing 17 > T 19 > St. 21 > T 15 > st. 16 > hall 25 > bed 13 = bed 14 > bay 18 > T 12 = T 11 = landing 5 > T 23 = bed 10 > vestib. 29 > dining 20 = drawing 22 > kitchen 27 > bed 1 = bath 8 = hmc 7 = bed 6 = wc 9 = tanks 3 = bed 2 = box 4 > porch 30 > scullery 28 > store 24 > larder* 26

*spaces arrayed in ascending order of RRA values (minimal living complex)

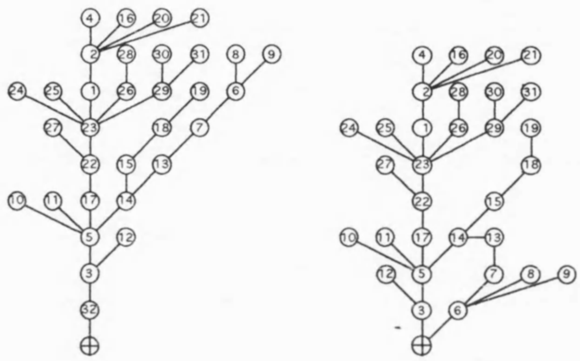
Figure 4.3. Prewar British plans

a) *House 42*



from the public space

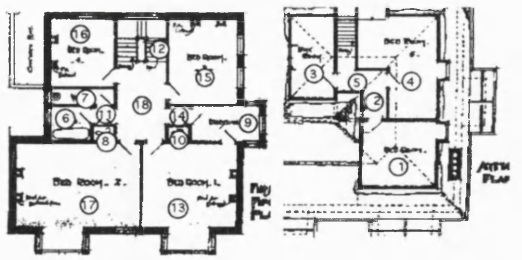
from a carrier space

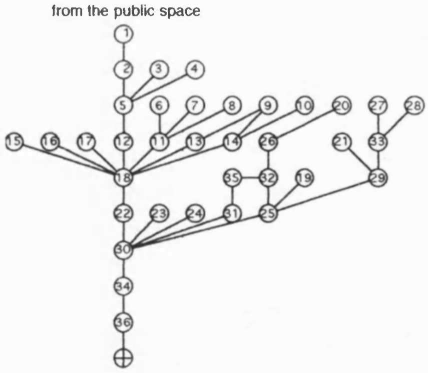


T	St.	landing	hall	T	st.	T	wc	bed	lobby	bed	bed	drawing	dining	kitchen	st.	landing	bath	bed	store	library	scullery	beer	bed
22 >	17 >	23 >	5 >	14 >	1 >	29 >	27 >	26 >	3 >	25 =	24 >	10 =	11 >	13 >	15 >	2 >	31 =	30 >	28 >	12 >	7 >	18 >	16 =
bed	bed	bed	T	wine	larder	boots*																	
4 =	21 =	20 >	6 >	19 >	9 =	8																	

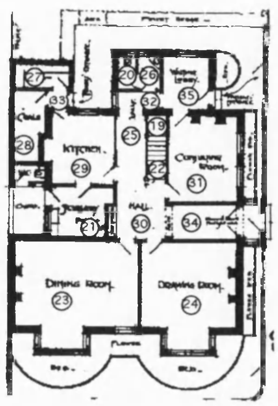
b) *House 162*

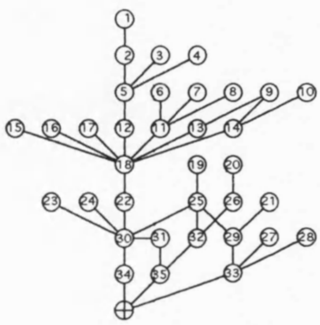
from the public space





from a carrier space



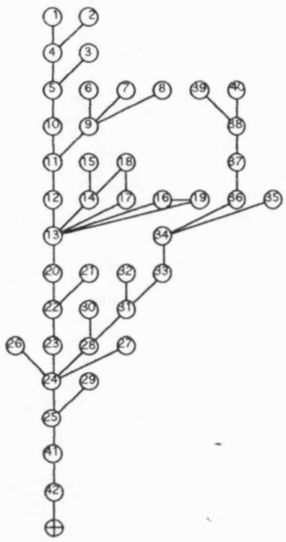


landing	St.	hall	T	st.	T	T	bed	consult.	bed	bed	bed	entr.	drawing	dining	kitchen	T	landing	store	wait.lby.	store	bath	wc	dress.
18 >	22 >	30 >	25 >	12 >	11 >	14 >	13 >	31 >	17 =	16 >	15 >	34 =	24 =	23 >	29 >	32 >	5 >	19 >	35 >	8 =	6 =	7 =	9 >
store	T	lavtry.	scullery	T	bed	box*																	
10 >	33 >	26 >	21 >	2 >	4 =	3																	

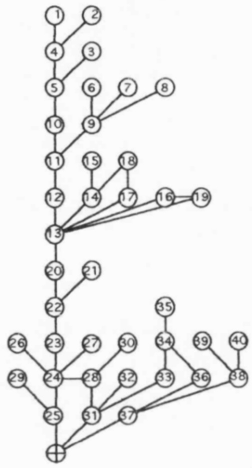
*spaces arrayed in ascending order of RRA values (minimal living complex)

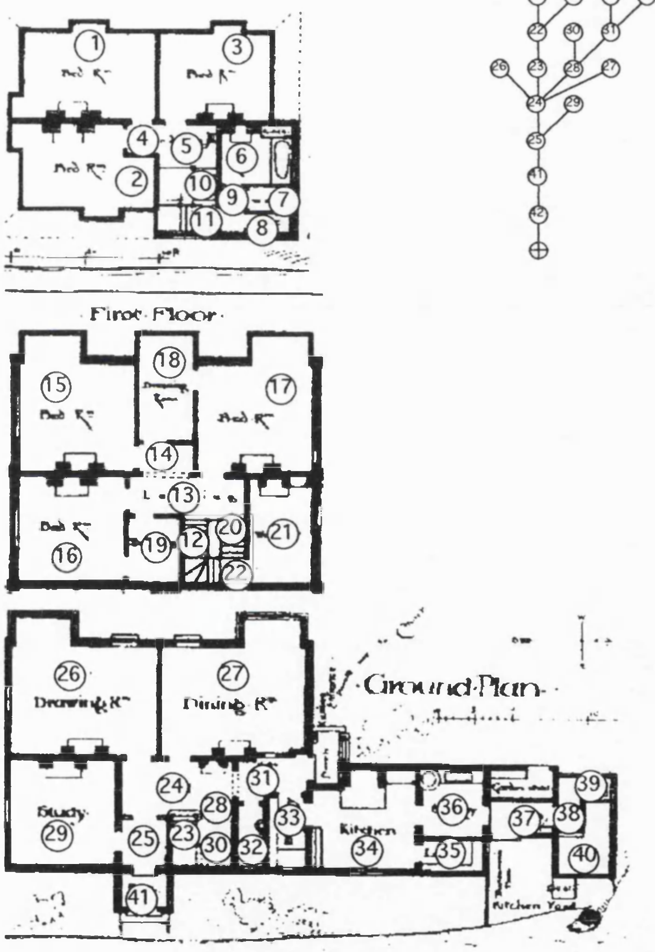
House 56

from the public space



from a carrier space



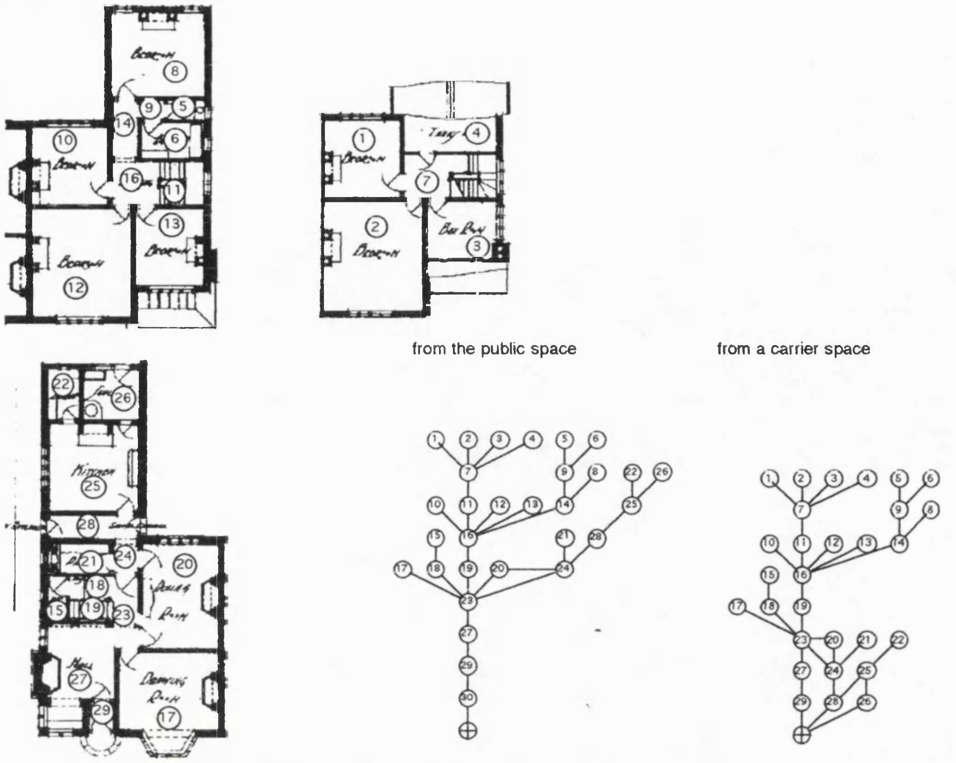


st.	T	landing	St.	hall	st.	T	T	T	work r.	bed	bed	dress.	lobby	T	dining	drawing	st.	wine	T	btlr's p.	dress.	bed	wc
20 =	22 =	13 >	23 >	24 >	12 >	28 >	14 =	11 >	21 =	17 >	16 =	19 >	25 =	31 >	27 =	26 >	10 =	30 >	9 >	33 >	18 >	15 >	32 =
study	landing	kitchen	bath	wc	hmc	scullery	landing	bed	larder	bck.e.	bed	bed	T	coals	wc*								
29 >	5 >	34 >	6 =	7 =	8 >	36 >	4 >	3 >	35 >	37 >	2 =	1 >	38 >	40 =	39								

*spaces arrayed in ascending order of RRA values (minimal living complex)

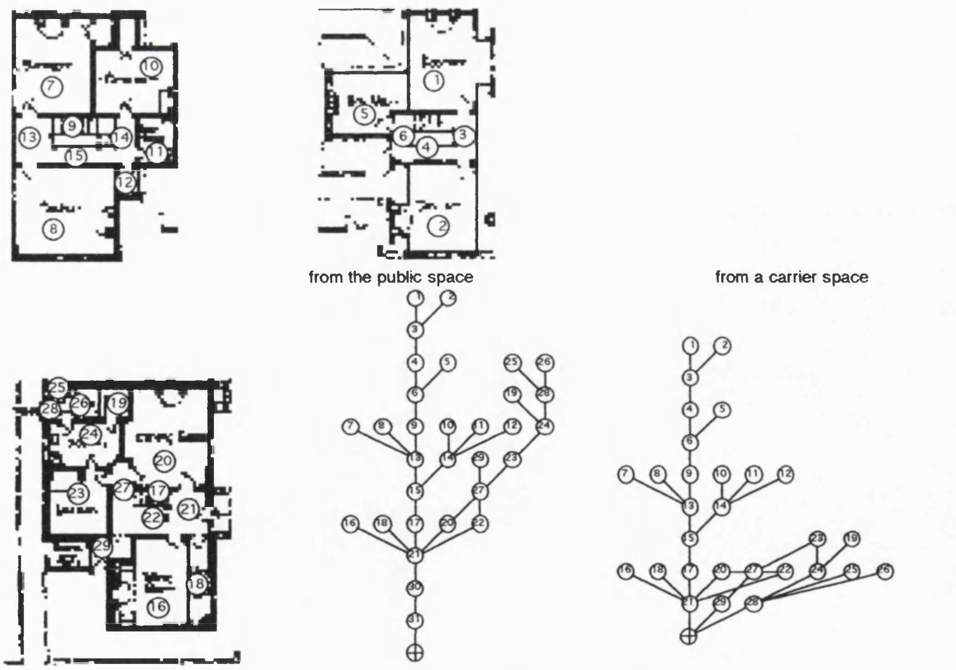
Figure 4.5. Prewar British plans

a) *House 143*



landing	St.	T	st.	T	T	dining	bed	bed	bed	hall	T	drawing	landing	grdn.e.	T	bed	pantry	entr.	wc
16 >	19 >	23 >	11 >	14 >	24 >	20 >	12 =	13 =	10 >	27 =	18 >	17 >	7 >	28 >	9 >	8 >	21 >	29 =	15 >
bed	bed	bed	tanks	kitchen	bath	wc	scullery	larder*											
3 =	2 =	1 =	4 >	25 >	6 =	5 >	26 >	22											

b) *House 226*

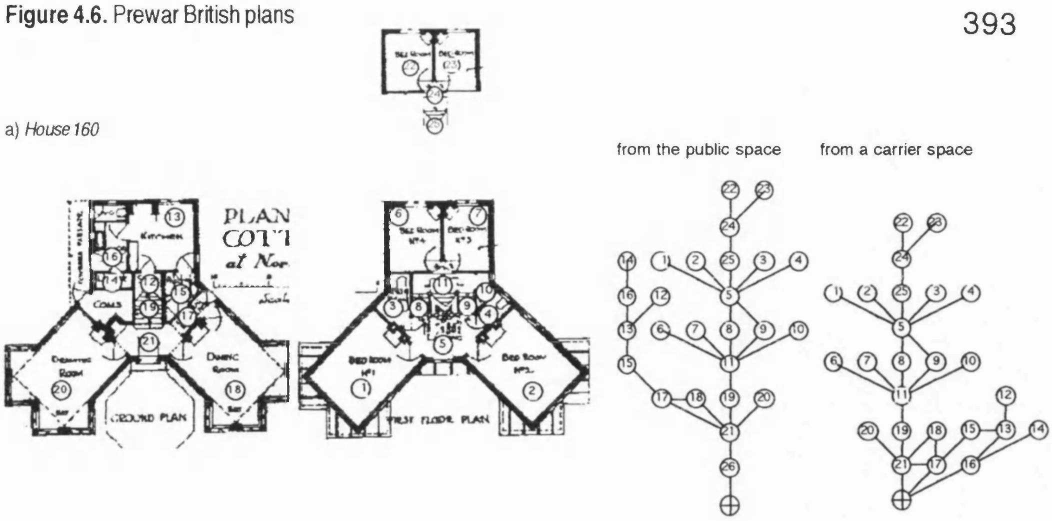


landing	St.	hall	T	dining	T	T	st.	T	sit.	cloaks	bed	bed	landing	kitchen	bath	bed	wc	grdn.e.	T
15 >	17 >	21 >	13 >	20 =	22 >	14 >	9 >	27 >	16 =	18 >	8 =	7 >	6 >	23 >	11 =	10 =	12 =	29 >	4 =
scullery	box	trdrs'.e.	T	store	coal	bed	bed	wc*											
24 >	5 >	28 =	3 >	19 >	26 =	2 =	1 =	25											

*spaces arrayed in ascending order of RRA values (minimal living complex)

Figure 4.6. Prewar British plans

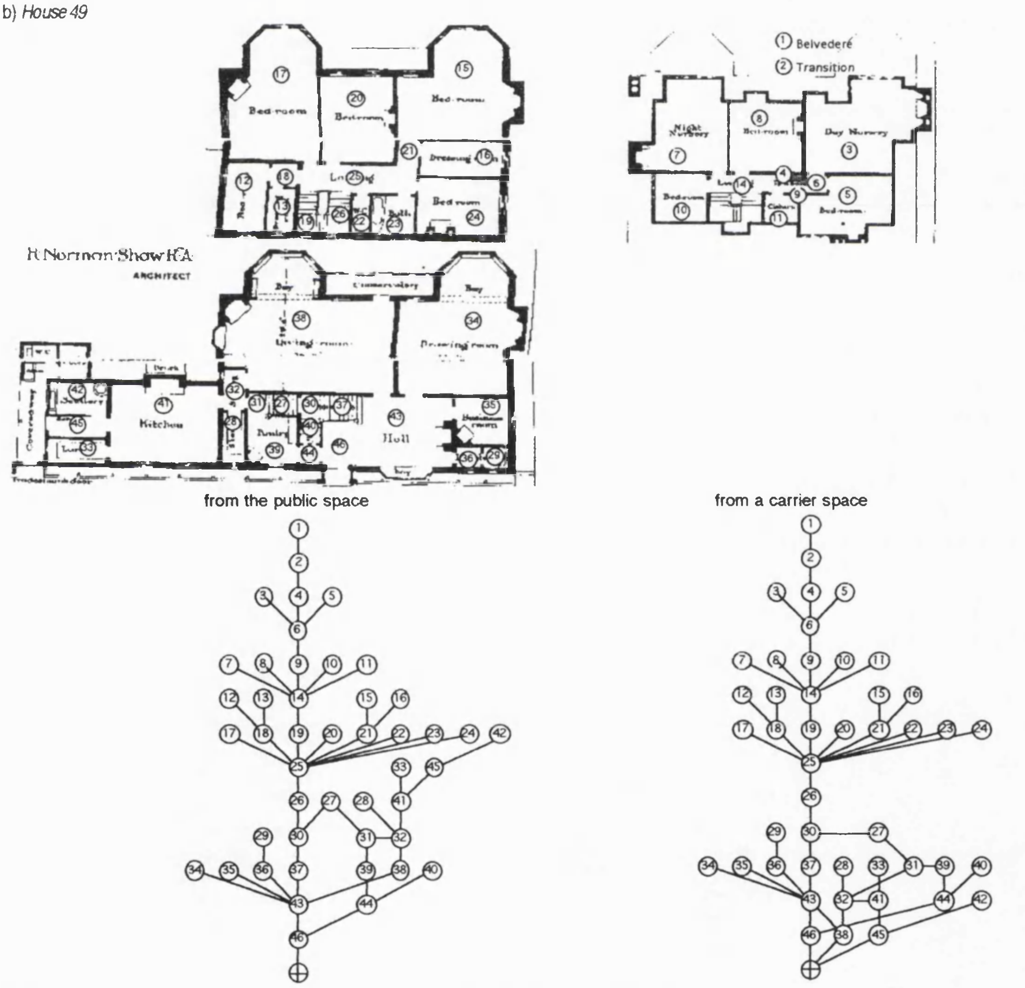
a) *House 160*



from the public space — from a carrier space

landing	st.	st.	St.	landing	hall	hmc	bed	bed	gdn.e.	st.	dining	bed	bath	wc	bed	drawing	pantry	T	kitchen	bed
11 >	8 =	9 =	19 >	5 >	21 >	10 =	6 =	7 =	17 >	25 >	18 >	2 =	3 =	4 =	1 >	20 >	15 >	24 >	13 >	23
	bed	scullery	store	larder*																
=	22 >	16 >	12 >	14																

b) *House 49*



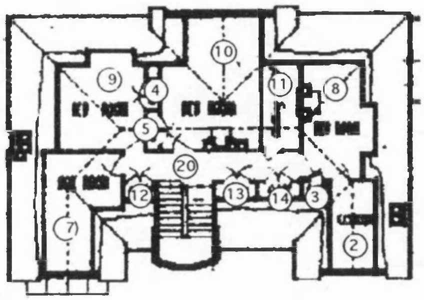
from the public space — from a carrier space

landing	st.	T	st.	St.	st.	T	T	landing	hall	bed	bath	bed	bed	wc	T	srvry.	dining	T	T
25 >	26 >	30 >	19 >	37 >	27 >	18 =	21 >	14 >	43 >	17 =	23 =	24 =	20 =	22 >	31 >	32 >	38 >	9 >	46 >
pantry	dress.	dress.	bed	bed	lavtry.	cistern	bed	bed	n.nusry.	bness.	drawing	kitchen	bed	T	store	wc	st.	T	d.nursry.
39 >	16 =	13 =	12 =	15 >	36 >	11 =	10 =	8 =	7 >	35 >	34 >	41 =	6 >	44 >	28 >	29 >	4 >	45 >	3 =
larder	bed	store	T	scullery	belvedere*														
33 =	5 >	40 >	2 >	42 >	1														

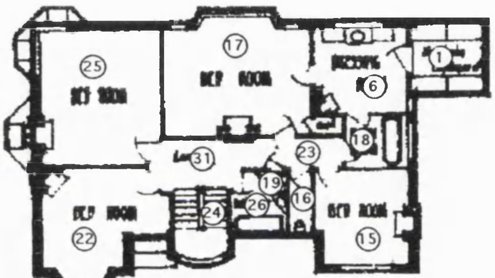
***spaces arrayed in ascending order of RRA values (minimal living complex)**

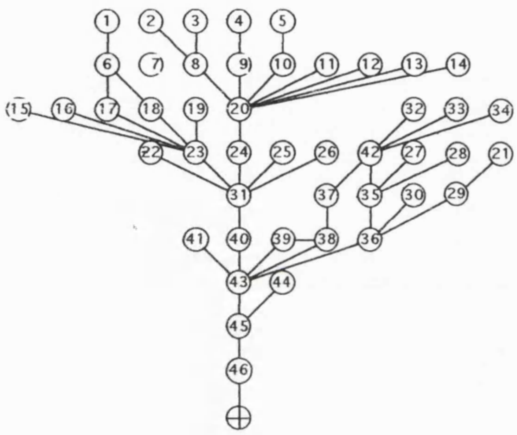
Figure 4.7. Prewar British plans

House 191

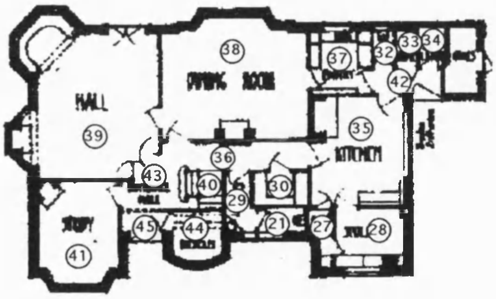


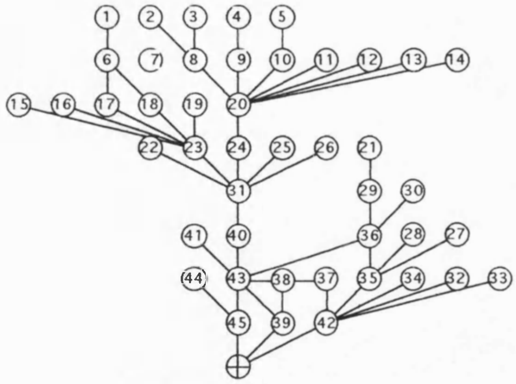
from the public space





from a carrier space





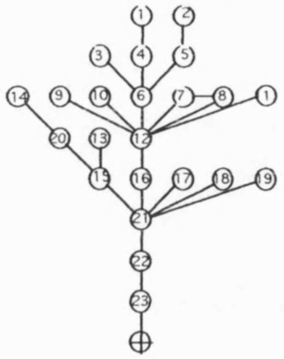
landing	St.	ent.hall	st.	T	T	T	bed	bath	bed	dining	hall	entr.	study	bed	bath	kitchen	hmc	bed	wc
31 >	40 >	43 >	24 >	23 >	20 >	36 >	22 =	26 =	25 >	38 >	39 >	45 >	41 >	17 =	18 =	35 >	19 =	15 =	16 >
bed	pantry	bed	bed	cloth.ste.	lin.ste.	store	store	box	lavtry.	store		cycles	T	dress.	scullery	store	cistern	store	store
8 >	37 =	9 =	10 >	11 =	13 =	12 =	14 =	7 >	29 >	30 >	>	44 =	42 >	6 >	28 =	27 >	2 =	3 >	4 =
store	wc	wc	larder	wine	wardrobe*														
5 =	21 >	32 =	34 =	33 >	1														

***spaces arrayed in ascending order of RRA values (minimal living complex)**

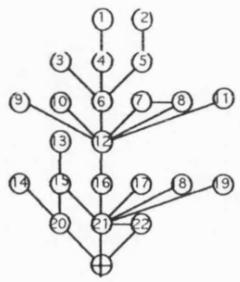
Figure 4.8. Prewar British plans

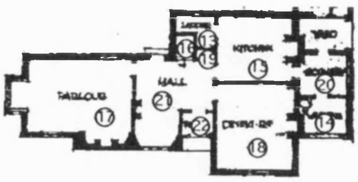
a) *House 192*

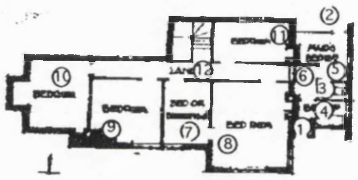
from the public space



from a carrier space

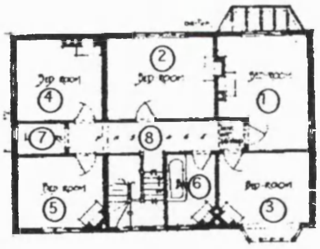


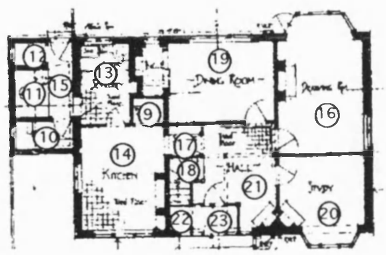




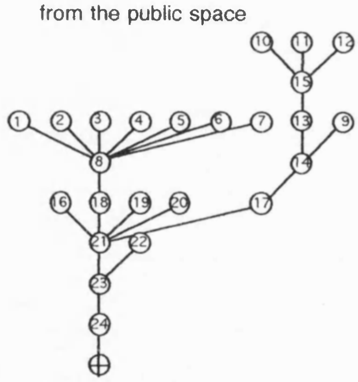
landing	St.	hall	T	dress.	bed	bed	kitchen	bed	bed	porch	dining	parlour	store	maid's
12 >	16 >	21 >	6 >	7 =	8 >	10 =	15 =	11 =	9 >	22 =	18 =	17 =	19 >	5 =
bath	wc	scull	larder	store	store	wash*								
4 >	3 >	20 >	13 >	1 =	2 >	14								

b) *House 137*

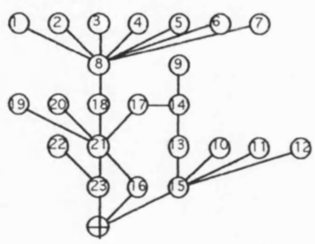




from the public space



from a carrier space

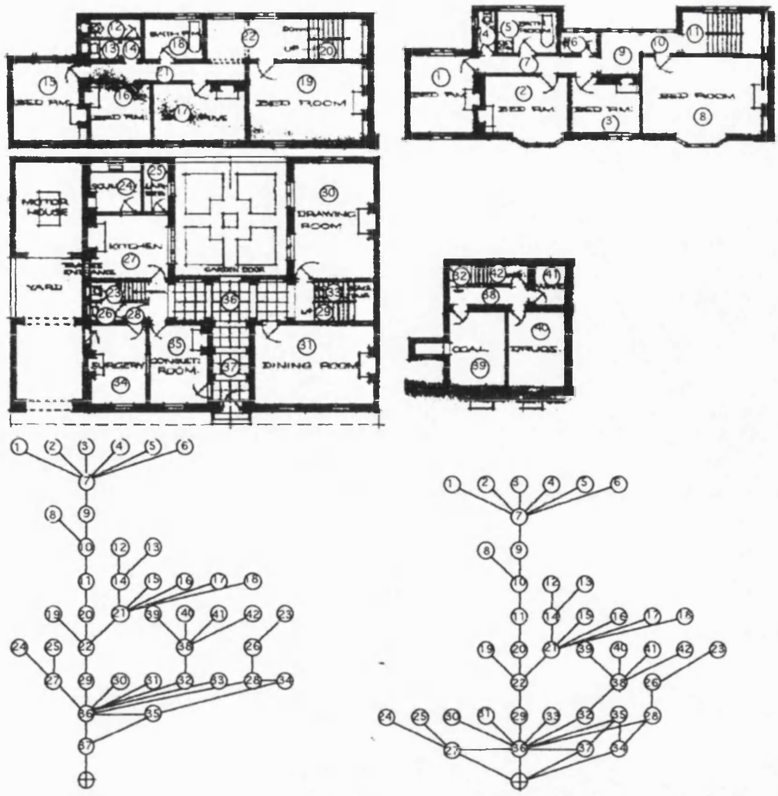


hall	St.	sevr.	landing	kitchen	entr.	drawing	dining	study	scully.	bed	store	bath	bed	bed
21 >	18 >	17 >	8 >	14 >	23 >	16 =	19 =	20 >	13 >	2 =	7 =	6 =	1 =	5 =
bed	bed	store	cloaks	T	coal	larder	e.c.*							
4 =	3 >	9 >	22 >	15 >	10 =	11 =	12							

***spaces arrayed in ascending order of RRA values (minimal living complex)**

Figure 4.9. Prewar British plans

a) *House 201*

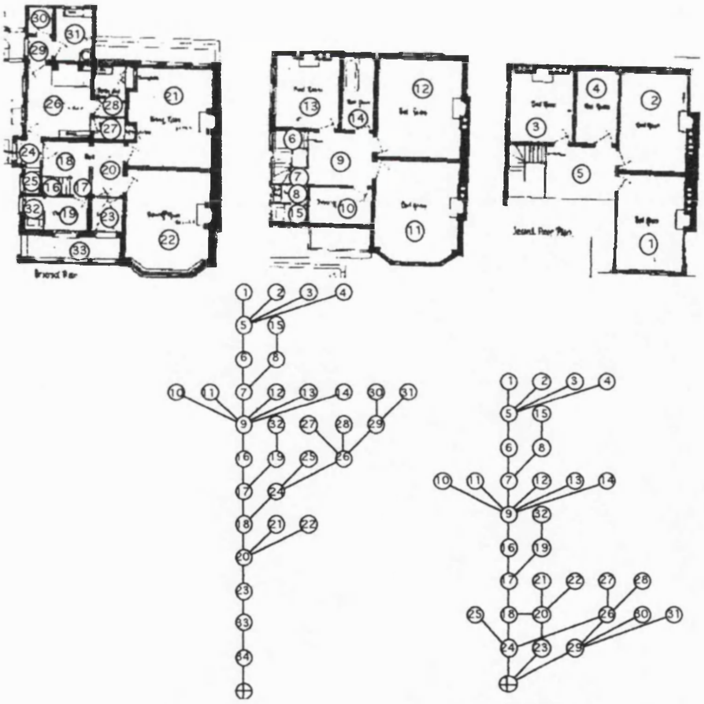


from the public space

from a carrier space

landing	St.	hall	st.	T	st.	T	bed	T	kitchen	consult.	entr.	drawing	dining	store	T	T	bath	
22 >	29 >	36 >	20 >	21 >	32 >	11 >	19 =	28 >	27 >	35 >	37 >	30 =	31 =	33 >	10 >	14 >	18 =	
bed	bed	bed	T	surgery	lavtry.	larder	scully.	T	bed	hmc	wc	store	coal	drugs	wine	T	wc	box
15 =	16 =	17 >	38 >	34 >	26 >	25 =	24 >	9 >	8 >	13 =	12 >	42 =	39 =	40 =	41 >	7 >	23 >	6
wc	bed	bath	bed	bed*														
4 =	2 =	5 =	1 =	3														

b) *House 72*



from the public space

from a carrier space

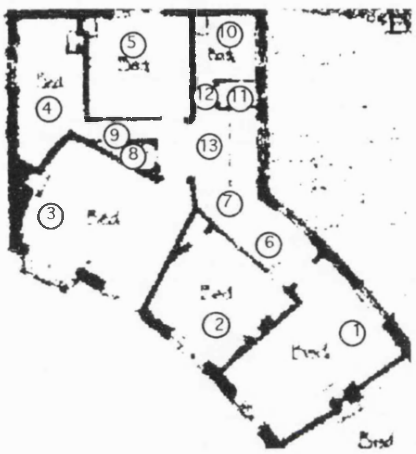
St.	T	T	hall	T	trds.e.	cloaks	hall	bed	bed	bath	dress.	bed	st.	kitchen	hmc	?	wc
16 =	17 >	9 >	18 >	7 >	24 >	19 >	20 >	12 =	13 =	14 =	10 =	11 >	6 >	26 >	8 >	25 >	32 =
T	drawing	entr.	dining	lobby	pantry	store	wc	box	bed	bed	bed	scullery	larder*				
5 >	22 =	23 =	21 >	29 >	28 =	27 >	15 >	4 =	3 =	1 =	2 >	31 >	30				

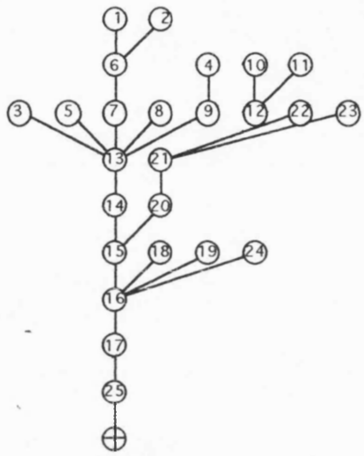
*spaces arrayed in ascending order of RRA values (minimal living complex)

Figure 4.10. Prewar British plans

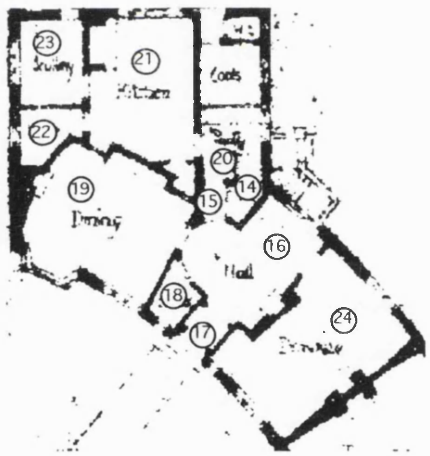
House 211

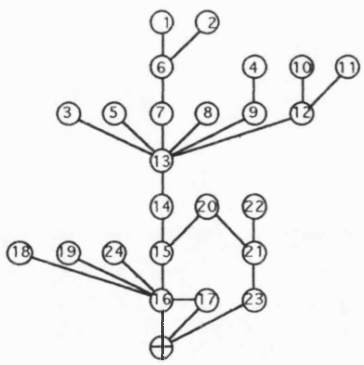
from the public space





from a carrier space



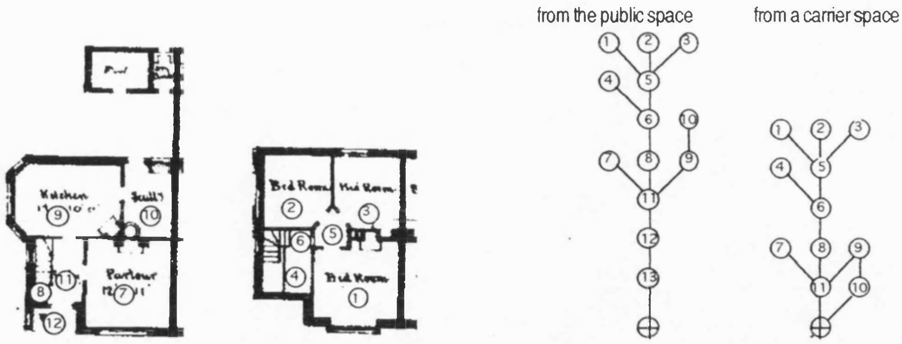


landing	ST	T	T	T	T	hall	pantry	bed	?	bed	T
13 >	14 >	15 >	7 >	12 >	9 =	16 >	20 =	3 =	8 =	5 >	6 >
kitchen	wc	bath	cloaks	dining	drawing	bed	entr.	bed	bed	scullery	larder*
21 =	11 =	10 >	18 =	19 =	24 =	4 =	17 >	2 =	1 >	23 =	22

***spaces arrayed in ascending order of RRA values (minimal living complex)**

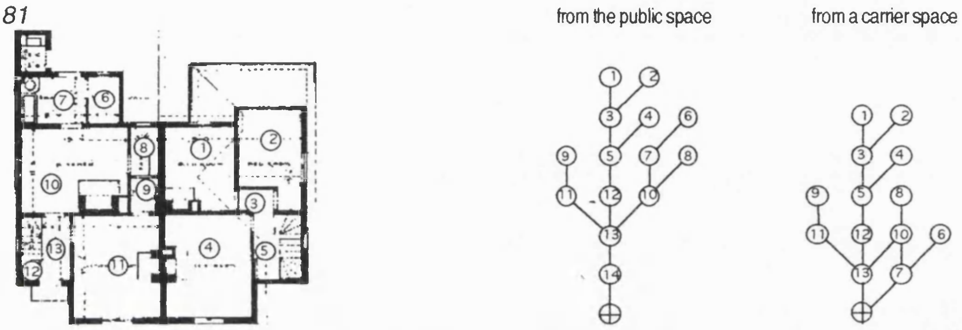
Figure 4.11. Prewar British plans

a) *House 24*



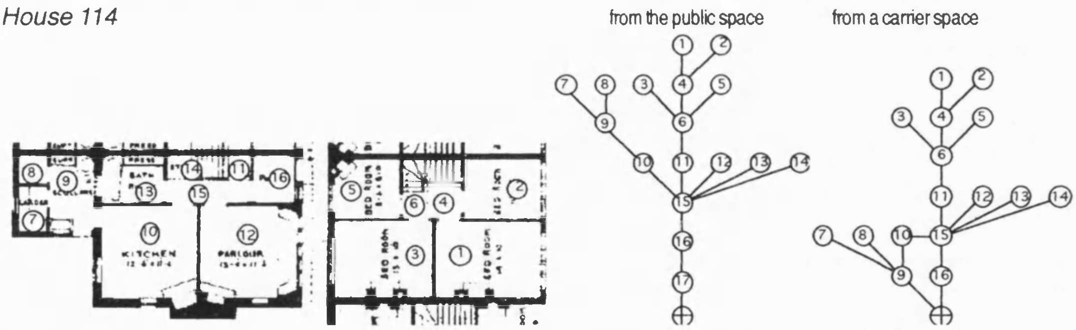
landing	St.	T	lobby	?	kitchen	bed	bed	bed	parlour	scullery*
6 >	8 >	5 >	11 >	4 >	9	3 =	2 =	1 >	7 >	10

b) *House 81*



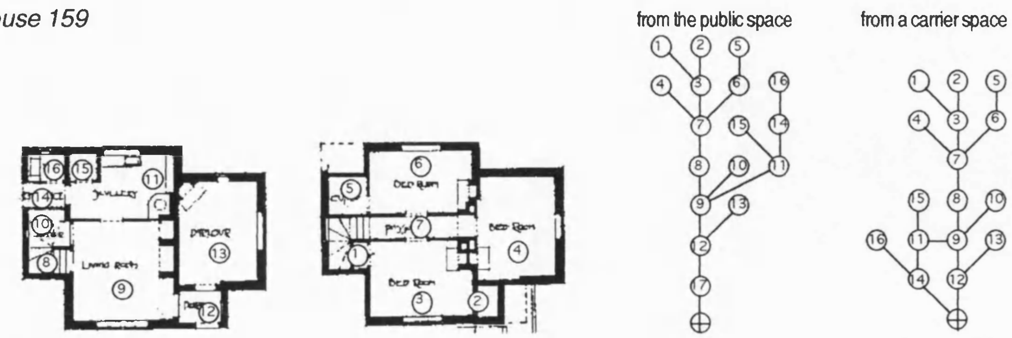
entr.	St.	landing	kitchen	living	T	scullery	bed	store	store	bed	bed	coal*
13 >	12 >	5 >	10 >	11 >	3 >	7 >	4 >	8 >	9 >	2 =	1 >	6

c) *House 114*



T	St.	landing	kitchen	store	parlour	bath	porch	T	scullery	bed	bed	bed	bed	larder	coal*
15 >	11 >	6 >	10 >	14 =	12 =	13 =	16 >	4 >	9 >	3 =	5 >	1 =	2 >	7 =	8

d) *House 159*

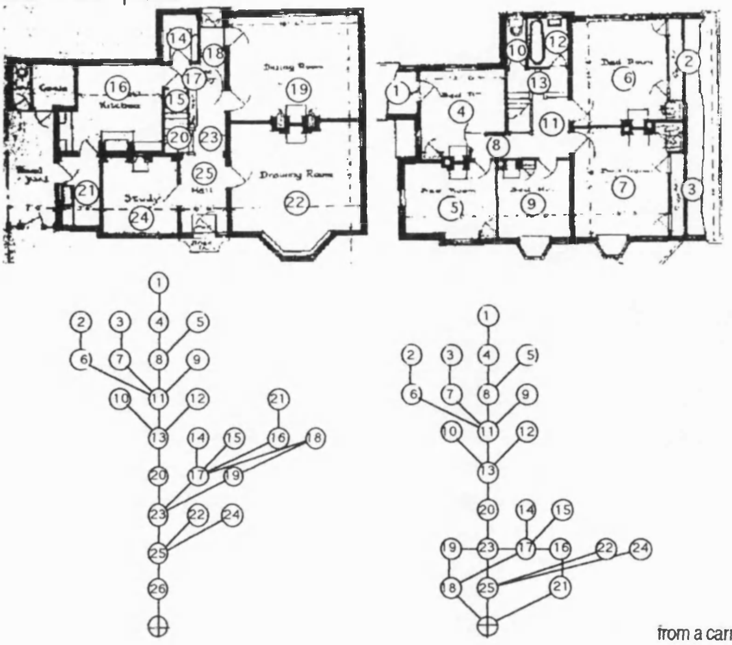


living	St.	landing	scullery	bed	porch	larder	bed	bed	bck.e.	fuel	store	store	parlour	store	e.c.*
9 =	8 >	7 >	11 >	3 =	12 >	10 =	6 >	4 >	14 >	15 >	2 =	1 =	13 >	5 >	16

***spaces arrayed in ascending order of RRA values (minimal living complex)**

Figure 4.12. Prewar British plans

a) *House 216*

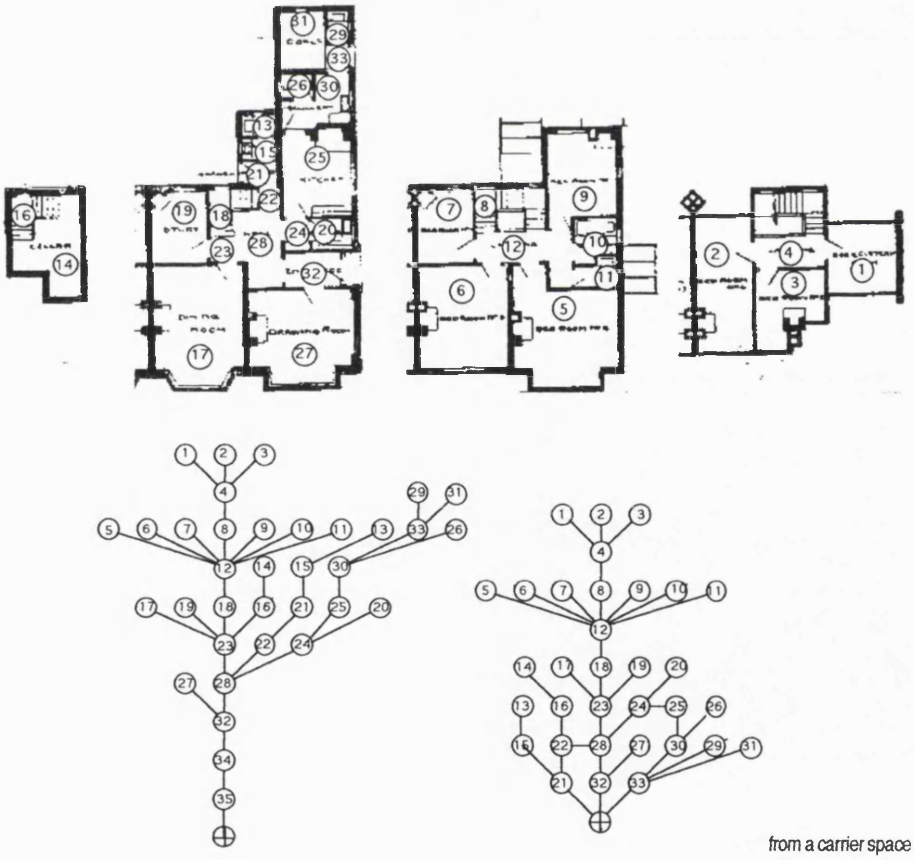


from the public space

from a carrier space

landing	St.	T	T	T	T	wc	hall	bath	dining	bed	bed	bed	kitchen	grd.e.	larder	store	bed
13 >	20 >	23 >	11 >	17 >	8 >	10 =	25 =	12 =	19 >	6 =	7 >	9 >	16 =	18 >	14 =	15 >	4 >
bed	stdy.	drawing	store	store	scullery	store*											
5 >	24 =	22 >	2 =	3 >	21 >	1											

b) *House 158*



from the public space

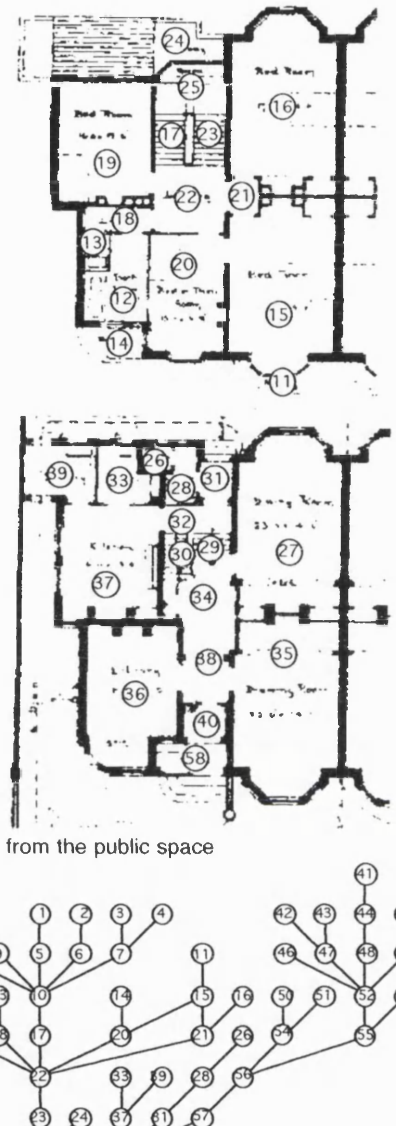
from a carrier space

hall	T	St.	landing	T	T	entr.	dining	study	kitchen	st.	bed	bed	bed	grdn.e.	pantry	bed	wc	bath
28 >	23 >	18 >	12 =	24 >	22 >	32 >	17 =	19 >	25 >	8 >	6 =	7 =	5 =	21 =	20 =	9 =	11	10
	st.	drawing	scullery	landing	lavtry.	cellar	T	larder	bed	box	bed	wc	wc	coals*				
>	16 >	27 >	30 >	4 >	15 >	14 >	33 >	26 >	3 =	1 =	2 >	13 >	29 =	31				

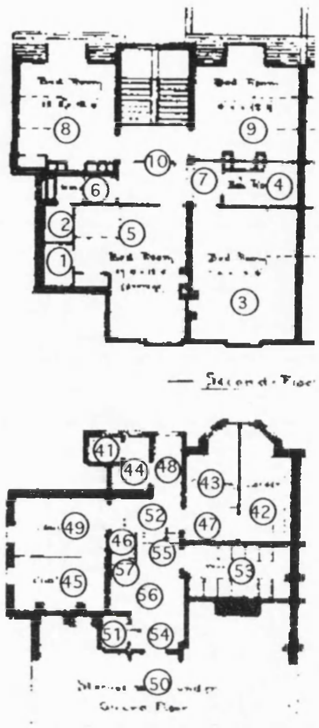
***spaces arrayed in ascending order of RRA values (minimal living complex)**

Figure 4.13. Prewar British plans

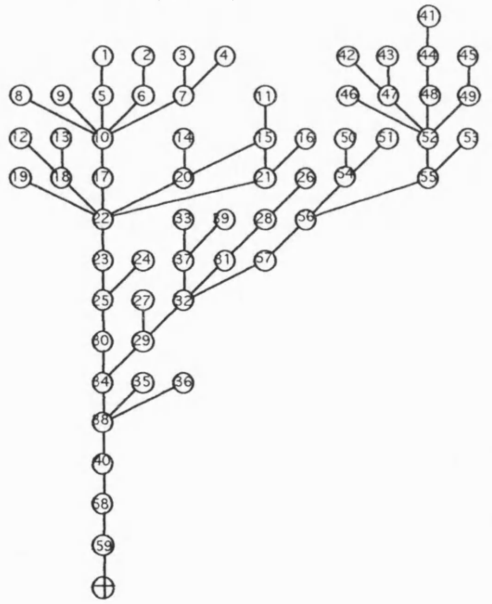
House 101

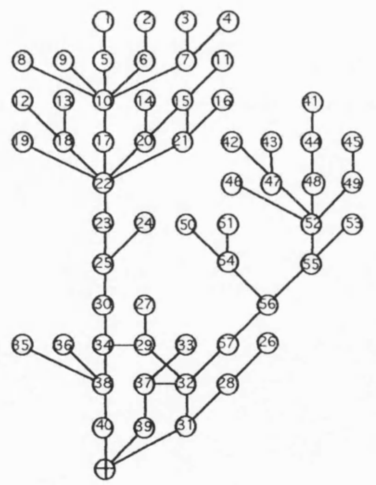


from the public space



from a carrier space





landing	T	St.	T	T	st.	landing	st.	T	dining	T	T	kitchen	balcony	st.	dress.	T
34 >	29 =	30 >	25 >	32 >	23 >	22 >	57 >	38 >	27 >	56 >	31 =	37 >	24 >	17 >	20 =	21 >
T	bed	T	library	entr.	drawing	landing	T	lavtry.	scully.	pantry	T	bed	balcony	bed	wc	bath
18 >	19 >	55 >	36 =	40 =	35 >	10 >	54 >	28 >	39 =	33 >	52 >	15 >	14 =	16 >	13 =	12 >
wine	T	T	bed	bed	bed	store	store	wc	T	T	coals	store	balcony	box	bed	store
53 >	7 >	6 =	5 >	8 =	9 >	51 =	50 >	26 >	48 =	47 =	49 >	46 >	11 >	4 =	3 >	1 =
store	T	larder	?	coals	wc*											
2 >	44 >	42 =	43 >	45 >	41											

***spaces arrayed in ascending order of RRA values (minimal living complex)**

Figure 4.14. Prewar British plans. Permeability graphs rooted from the public space

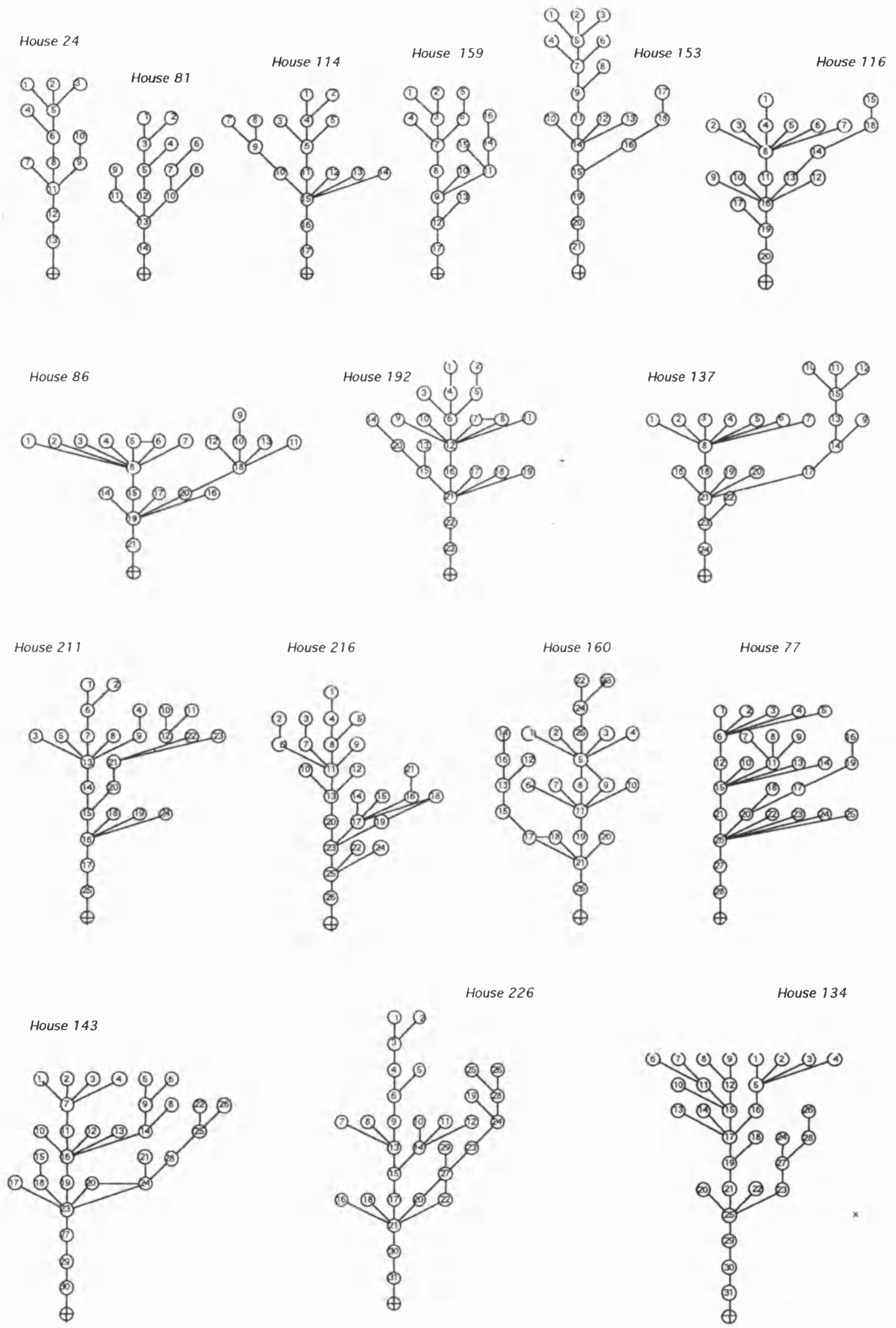


Figure 4.14. Prewar British plans. Permeability graphs rooted from the public space (cont.)

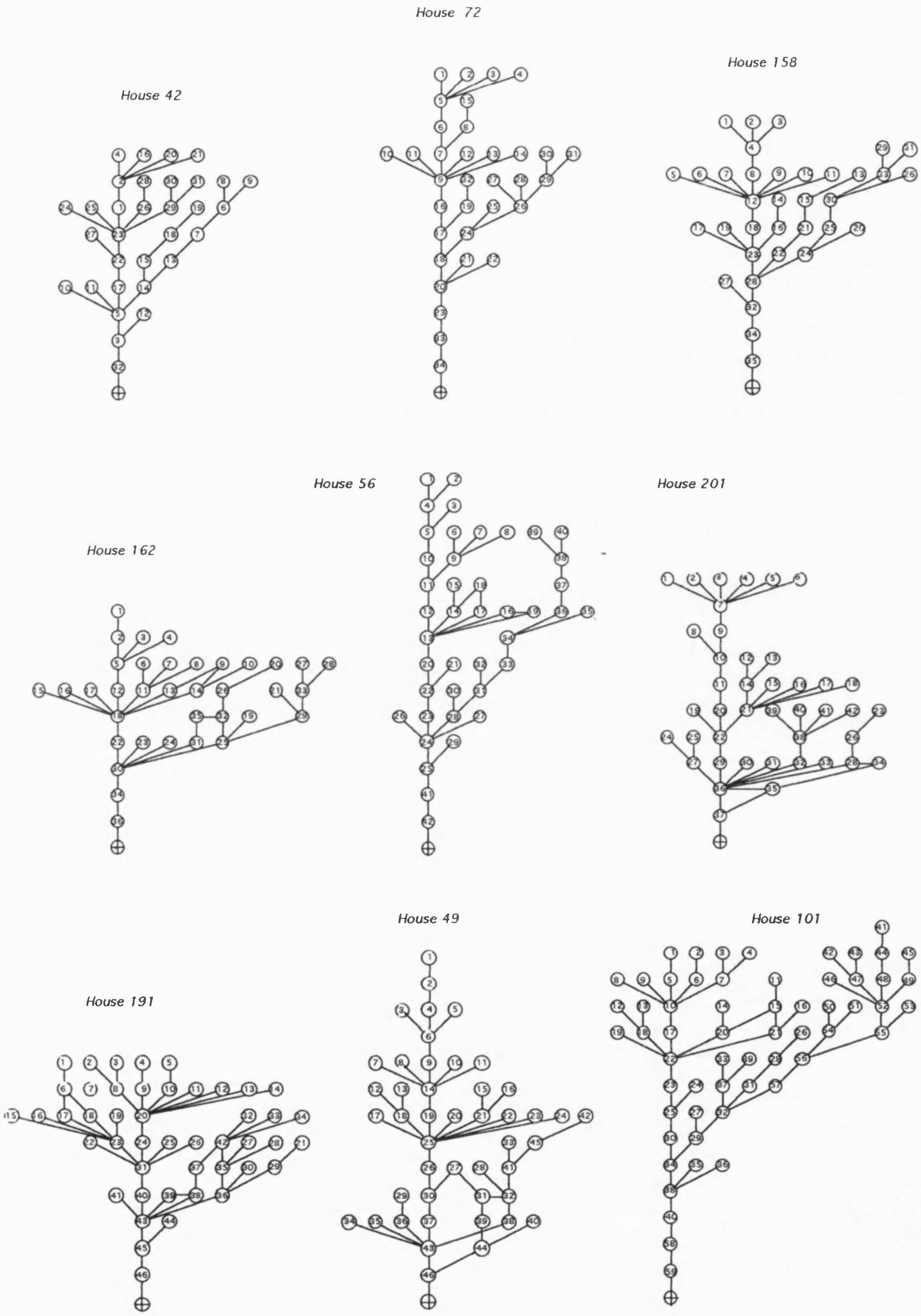


Figure 4.15. Prewar British plans. Permeability graphs rooted from a carrier space

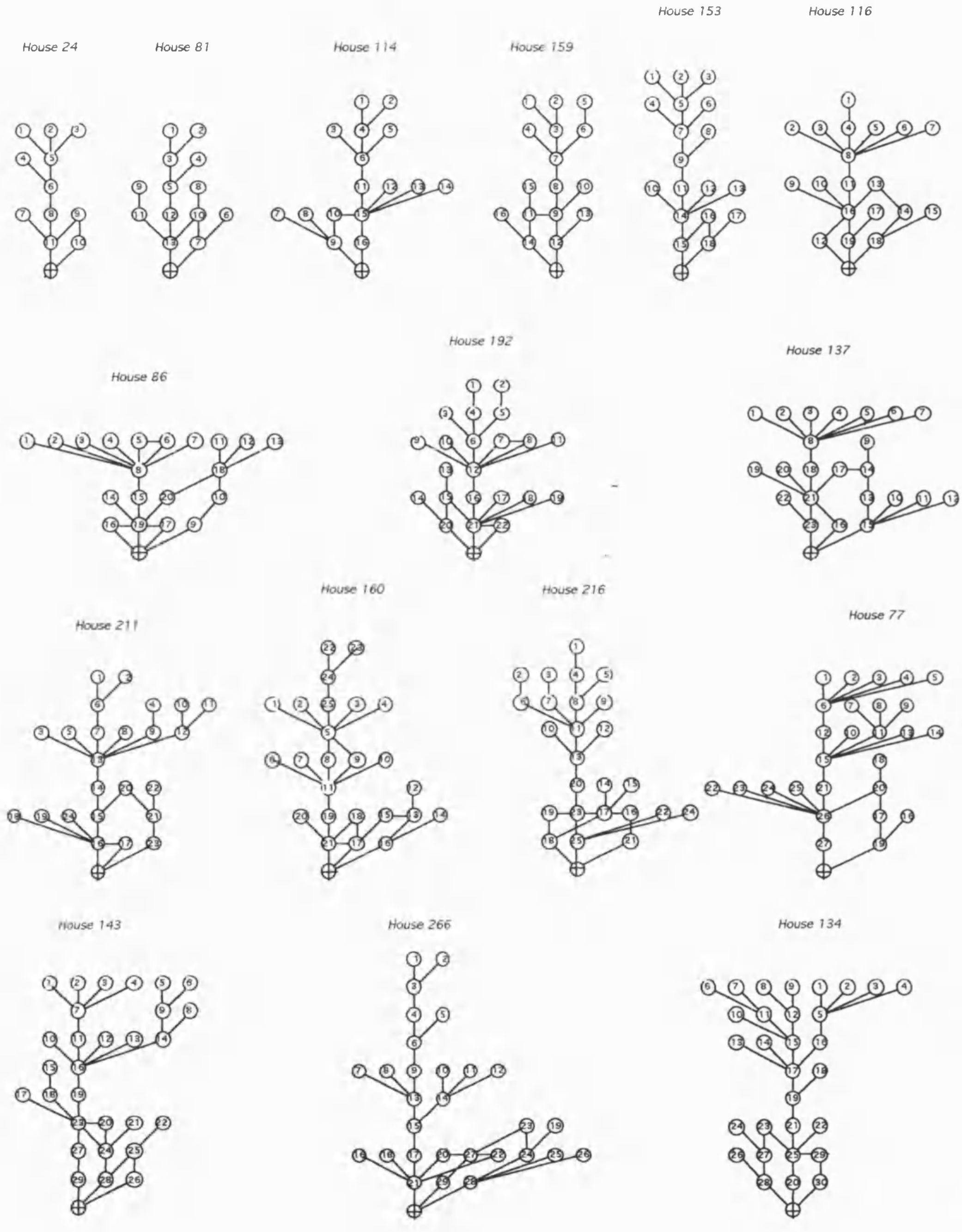
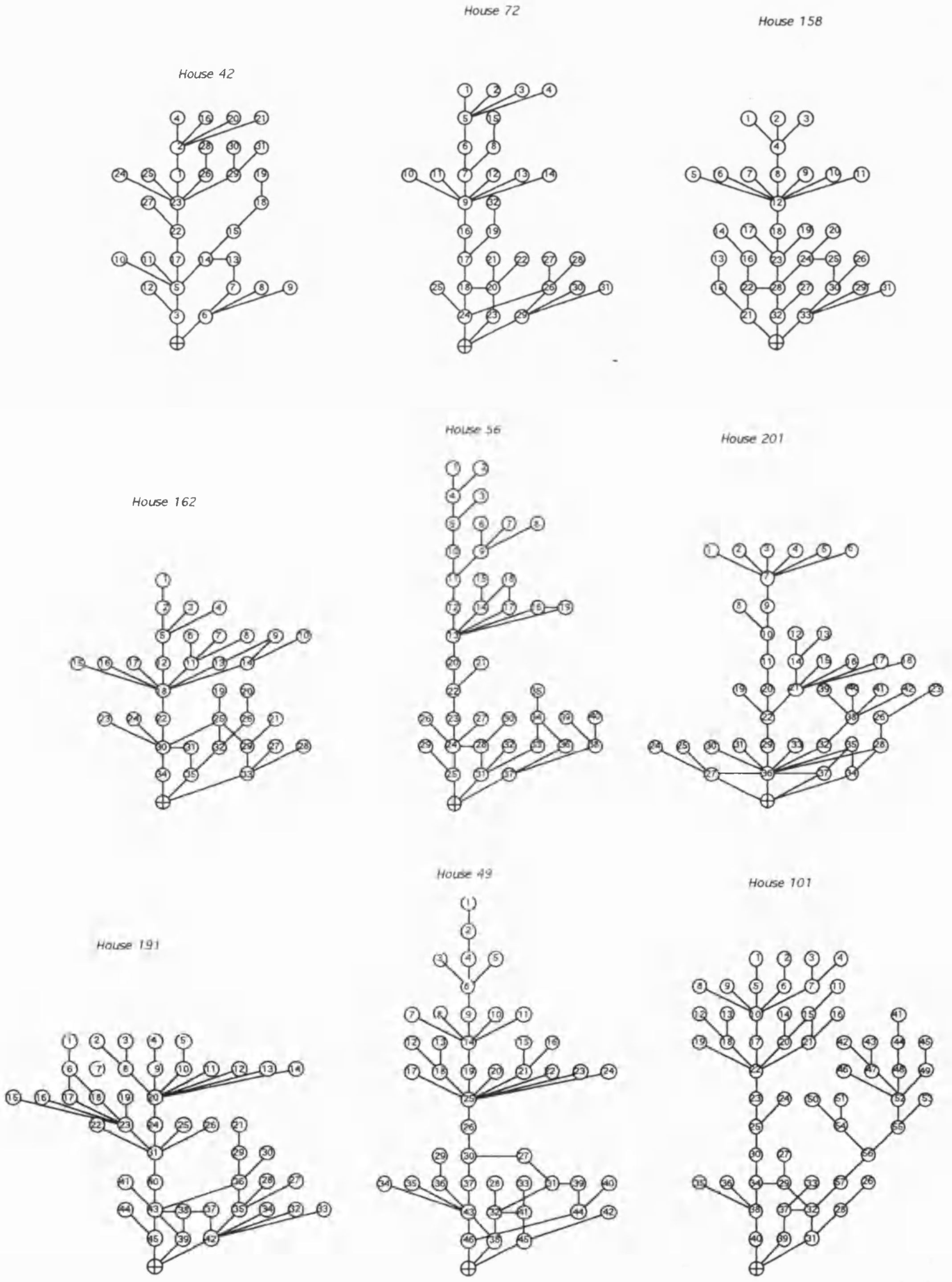
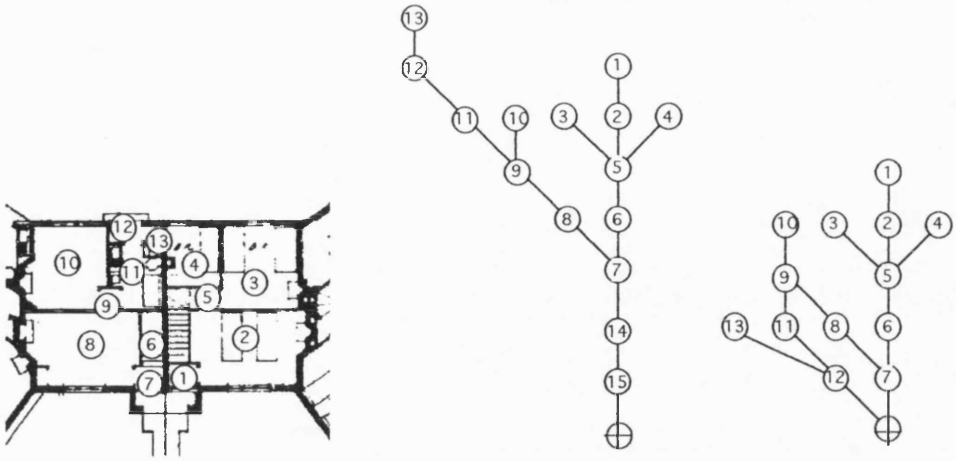


Figure 4.15. Prewar British plans. Permeability graphs rooted from a carrier space (cont.)



a) *House 253*

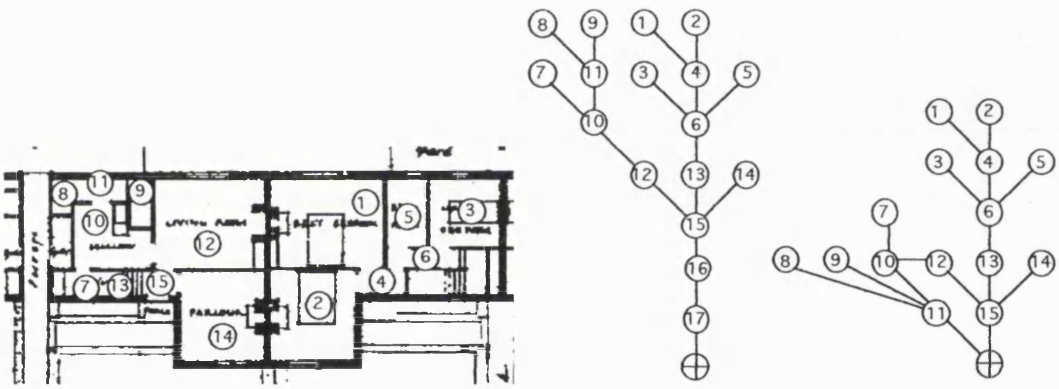
from the public space from a carrier space



T	St.	living	T	T	scullery	bed	parlour	bed	bed	T	store	wc*
7 >	6 =	8 >	5 =	9 >	11 >	2 >	10 =	4 =	3 >	12 >	1 >	13

b) *House 326*

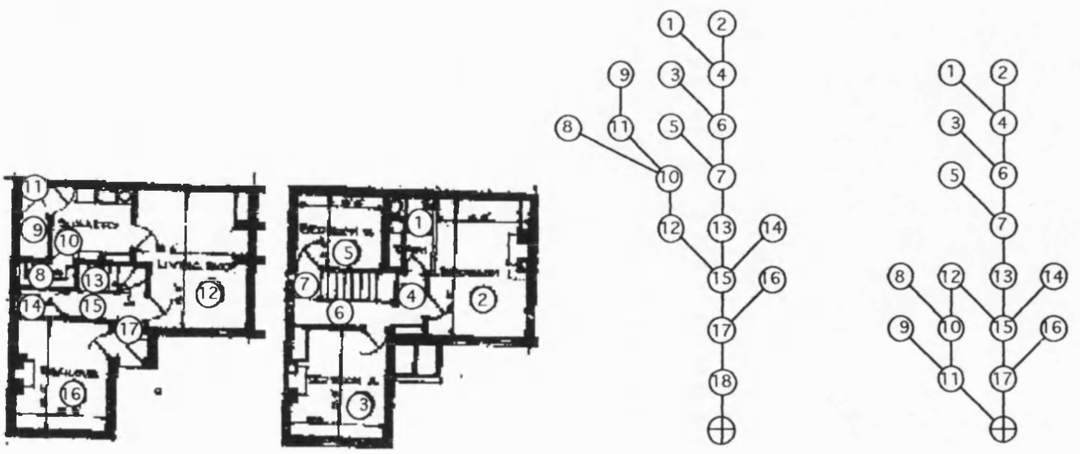
from the public space from a carrier space



entr.	St.	living	landing	scullery	T	parlour	bed	bath	bck.e.	larder	bed	bed	wc	coal*
15 >	13 >	12 >	6 >	10 >	4 =	14 >	3 =	5 =	11 >	7 >	1 =	2 >	8 =	9

c) *House 351*

from the public space from a carrier space



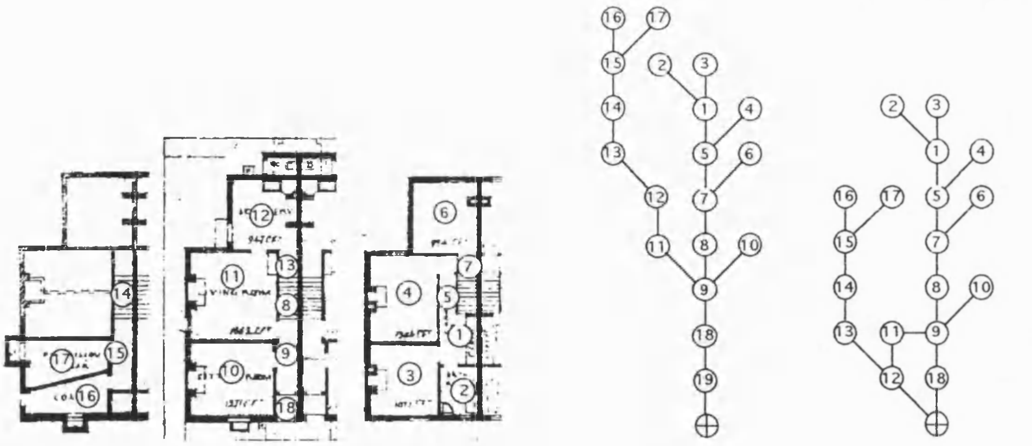
T	St.	landing	living	T	entr.	wc	scullery	bed	T	bed	parlour	bck.e.	larder	bath	bed	coal*
15 >	13 >	7 >	12 >	6 >	17 >	14 >	10 >	5 >	4 >	3 >	16 >	11 >	8 >	1 =	2 >	9

***spaces arrayed in ascending order of RRA values (minimal living complex)**

Figure 4.17. Wartime and postwar British houses

a) *House 263*

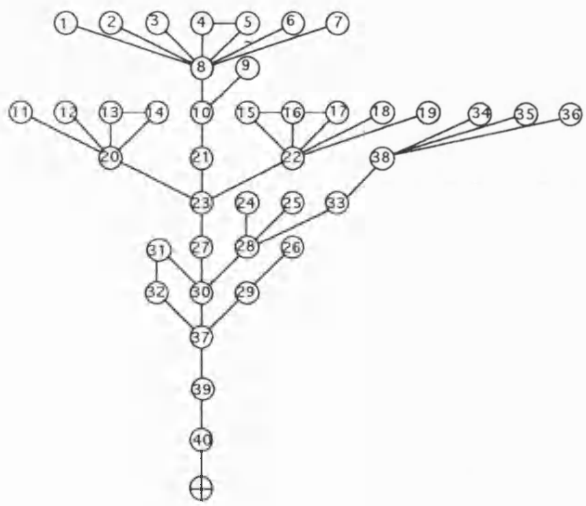
from the public space — from a carrier space

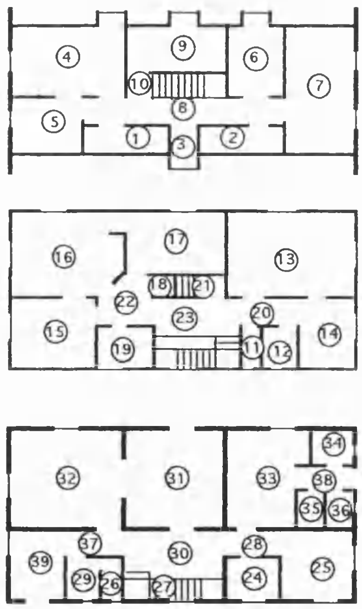


T	St.	living	T	scullery	landing	sitting	entr.	T	bed	st.	bed	bed	bath	store	T	store	coal
9 >	8 >	11 >	7 >	12 >	5 >	10 =	18 >	13 >	6 >	14 >	4 =	3 =	2 =	1 >	15 >	17 =	16

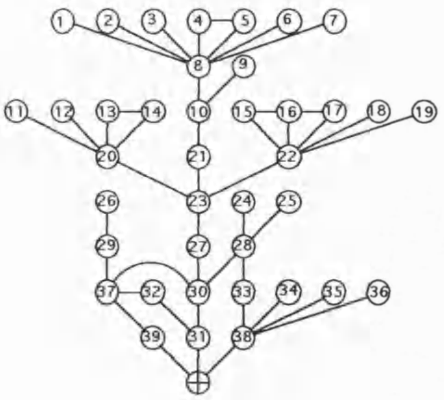
b) *House 401*

from the public space





from a carrier space



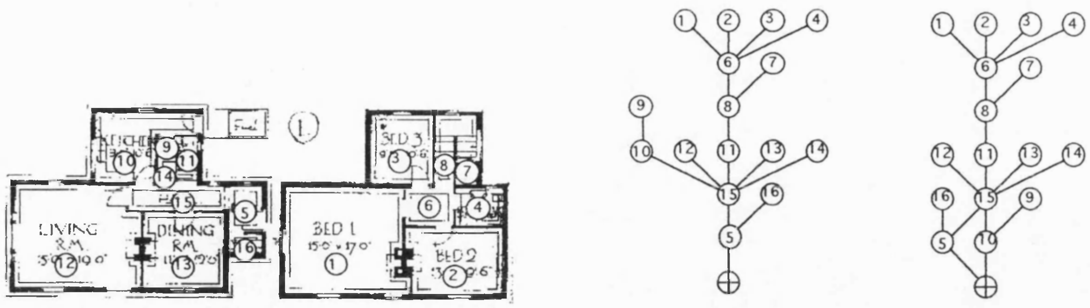
landing	St.	hall	st.	T	T	landing	T	T	dining	T	d.nurs.	n.nurs.	n.nurs.	b/wc(ch)	store	bed	dress
23 >	27 >	30 >	21 >	22 >	20 >	10 >	28 >	37 >	31 >	8 >	16 >	17 =	15 >	19 =	18 >	13 =	14 =
wc	bath	kitchen	bed	mds'.sit	pantry	drawing	lavtry.	entr.	bed	bed	store	bed	bed	recess	tanks	bck.e.	wc
11 =	12 >	33 >	9 >	25 =	24 >	32 =	29 >	39 >	5 =	4 >	1 =	7 =	6 =	3 =	2 >	38 >	26 >
larder	coal	wc*															
34 =	35 =	3															

*spaces arrayed in ascending order of RRA values (minimal living complex)

Figure 4.18. Wartime and postwar British houses

a) *House 357*

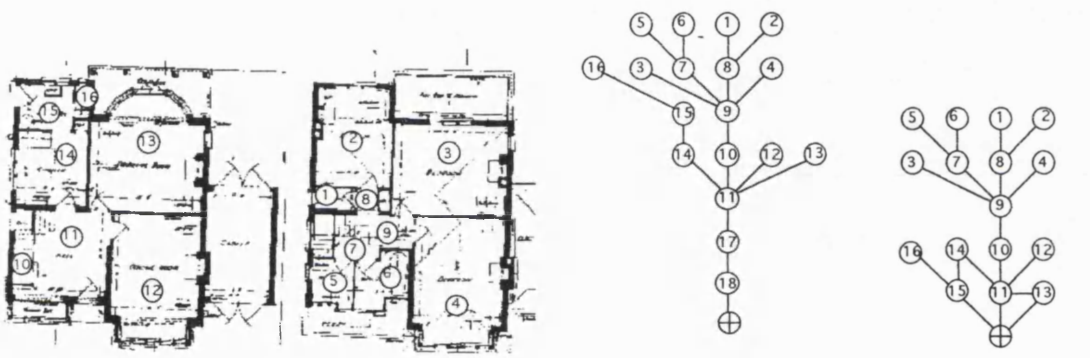
from the public space   from a carrier space



St.	hall	landing	T	kitchen	entr.	store	dining	living	linen	bed	bed	b/wc	bed	wc	larder*
11 =	15 >	8 >	6 >	10 =	5 >	14 =	13 =	12 >	7 >	1 =	3 =	4 =	2 >	16 =	9

b) *House 449*

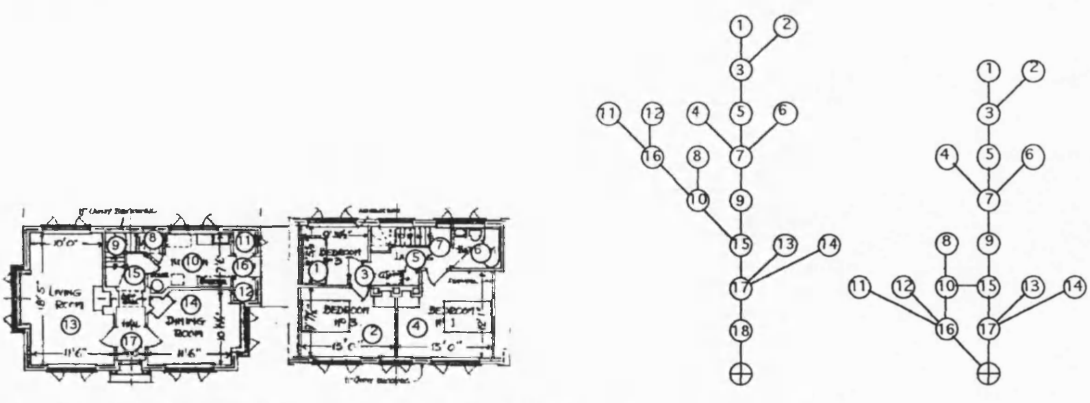
from the public space   from a carrier space



landing	St.	hall	T	T	bed	bed	kitchen	dining	drawing	wc	bath	box	bed	scullery	larder*
9 >	10 >	11 >	7 =	8 >	4 =	3 >	14 >	12 =	13 >	1 =	6 =	5 =	2 >	15 >	16

c) *House 470*

from the public space   from a carrier space



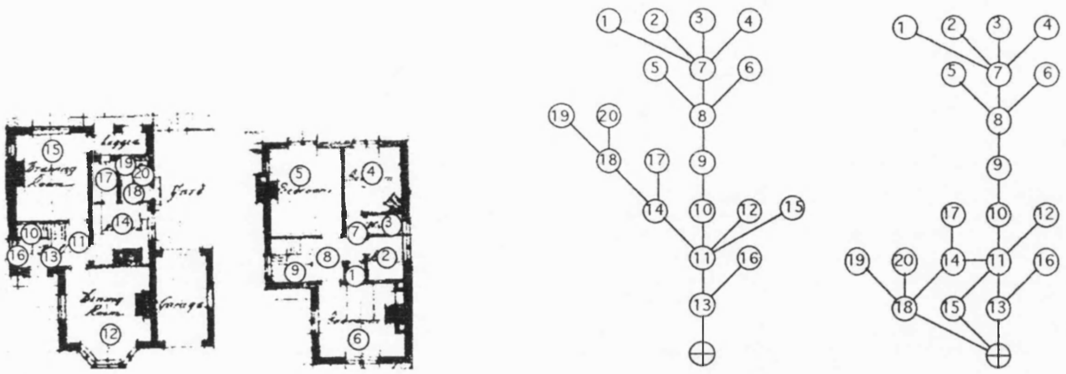
T	St.	landing	kitchen	entr.hall	T	bck.e.	b/wc	bed	larder	T	living	dining	wc	coal	bed	bed*
15 >	9 >	7 >	10 >	17 >	5 >	16 >	6 =	4 >	8 >	3 >	13 =	14 >	11 =	12 >	2 =	1

***spaces arrayed in ascending order of RRA values (minimal living complex)**

Figure 4.19. Wartime and postwar British houses

a) *House 419*

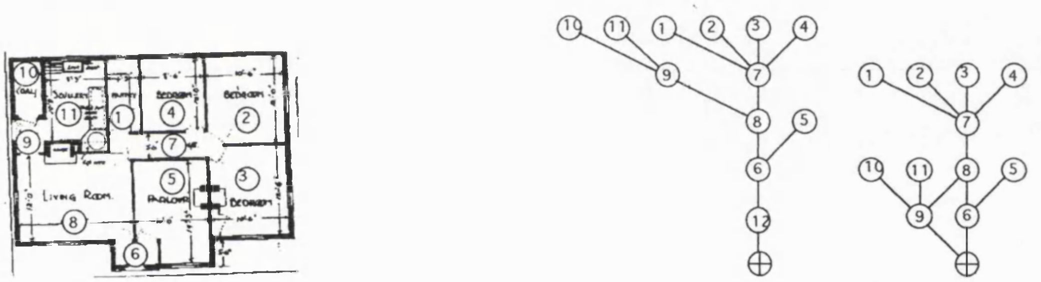
from the public space	from a carrier space



St	T	landing	T	kitchen	T	hall	drawing	dining	bed	lavtry.	bed	larder	store	bed	wc
10 =	11 >	9 >	8 >	14 >	7 =	13 >	15 =	12 >	6 =	18 =	5 >	17 >	16 =	4 =	3 =
linen	bath	wc	store*												
1 =	2 >	20 =	19												

b) *House 331*

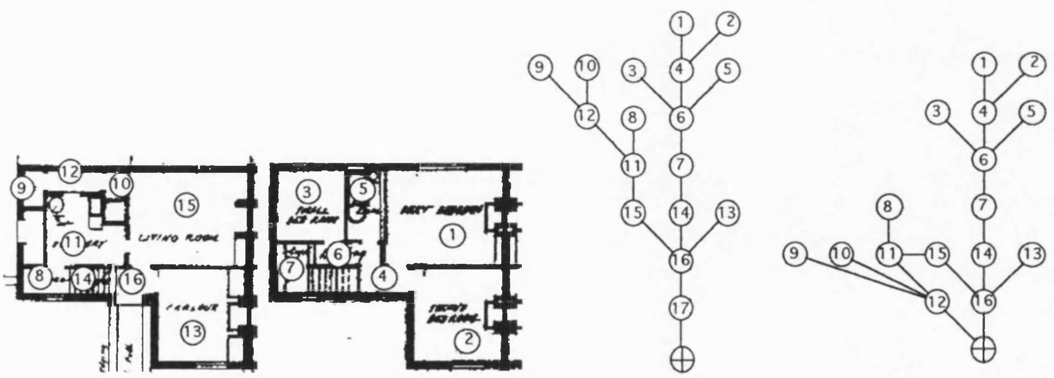
from the public space	from a carrier space



living	T	T	entr.	bed	pantry	bed	bed	coals	scullery	parlour*
8 >	7 >	9 >	6 >	2 =	1 =	3 =	4 >	10 =	11 >	5

c) *House 332*

from the public space	from a carrier space



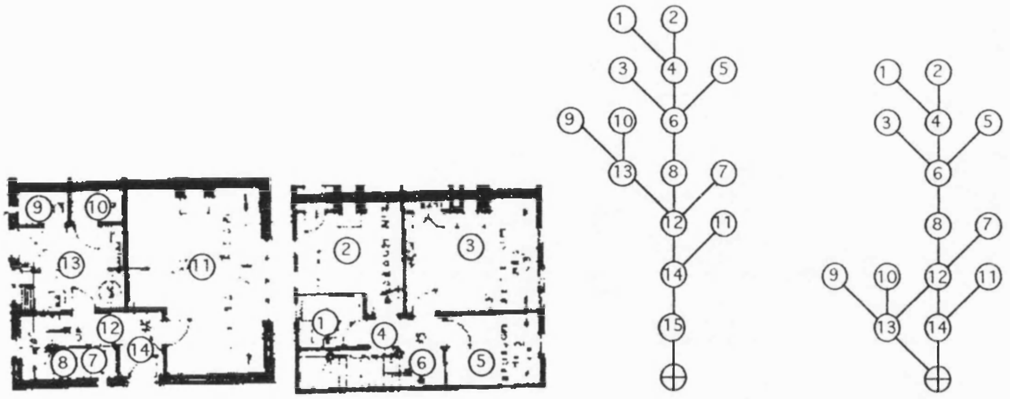
St.	entr.	landing	living	T	scullery	parlour	T	bck.e.	bathe	bed	larder	bed	bed	wc	coal*
14 =	16 >	7 >	15 >	6 >	11 >	13 >	4 >	12 =	5 =	3 >	8 >	2 =	1 >	9 =	10

***spaces arrayed in ascending order of RRA values (minimal living complex)**

Figure 4.20. Wartime and postwar British houses

a) *House 481*

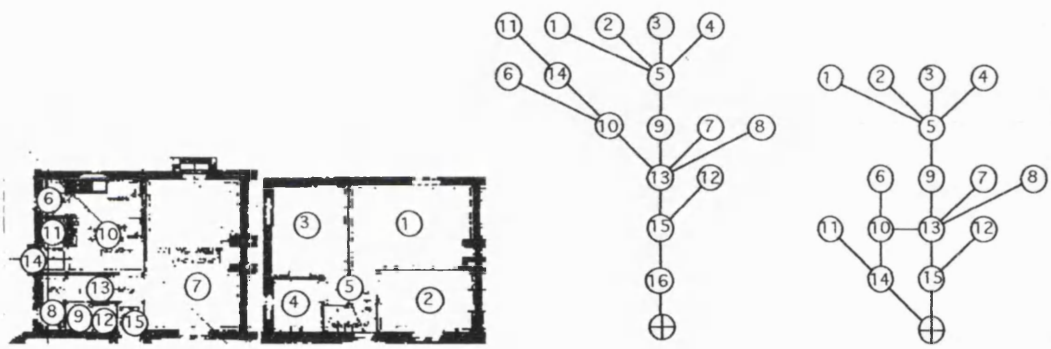
from the public space from a carrier space



T	St	landing	scullery	entr.	T	store	bed	bed	store	larder	b/wc	bed	living*
12 =	8 >	6 >	13 >	14 =	4 >	7 >	3 =	5 >	10 =	9 >	1 =	2 =	11

b) *House 399*

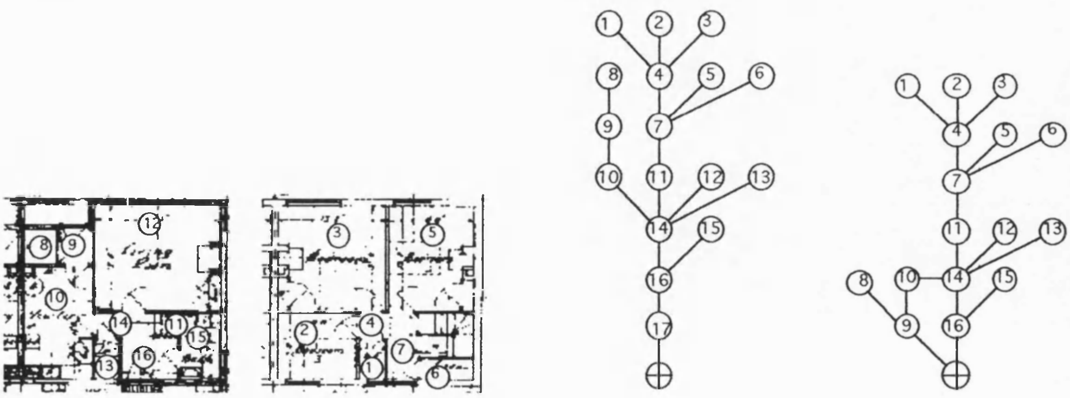
from the public space from a carrier space



hall	St	kitchen	landing	entr.	wc	living	bck.e.	larder	bed	bed	bath	bed	store	fuel*
13 >	9 >	10 >	5 >	15 >	8 =	7 >	14 >	6 >	2 =	1 =	4 =	3 >	12 >	11

c) *House 457*

from the public space from a carrier space



St.	T	landing	T	scullery	entr.	living	larder	linen	bed	bck.e.	wc	bed	bed	bath	coal*
11 =	14 >	7 >	4 =	10 >	16 >	12 =	13 >	6 =	5 >	9 >	1 =	3 =	2 >	15 >	8

***spaces arrayed in ascending order of RRA values (minimal living complex)**

Figure 4.21. Wartime and postwar British plans (rooted from the public space)

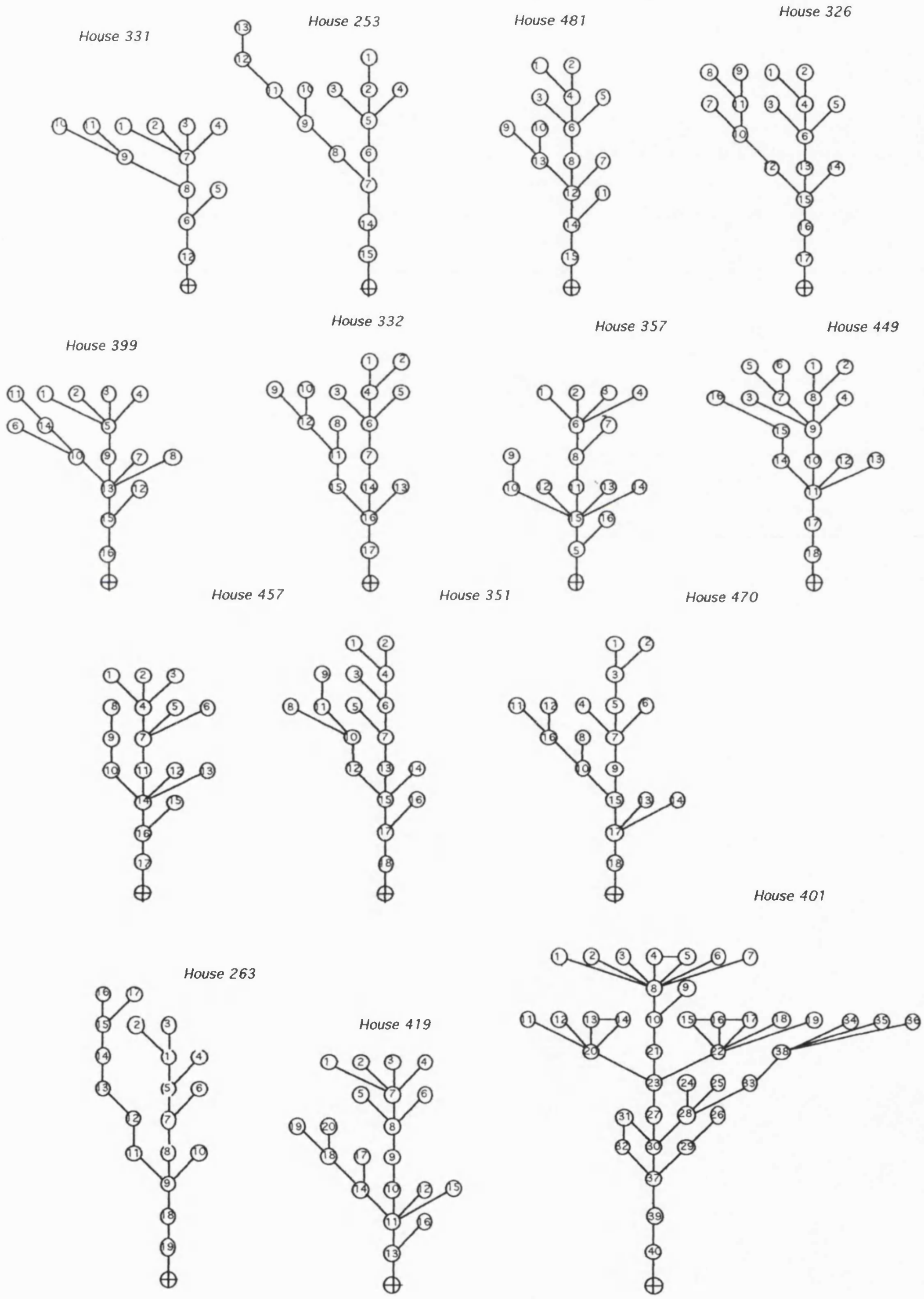


Figure 4.22. Wartime and post-war plans (rooted from a carrier space)

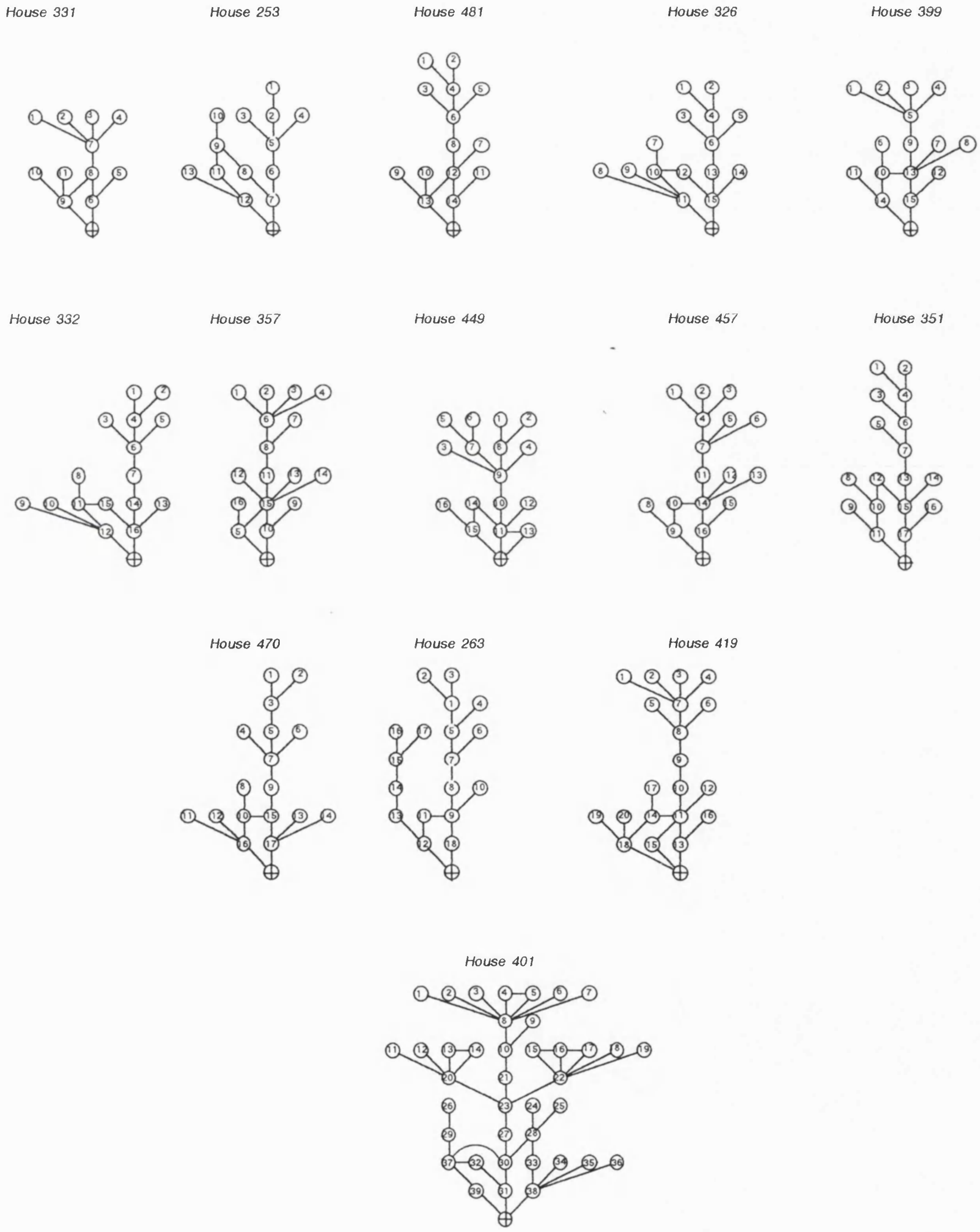


Table 4. Selected prewar British plans. General information.

No of plan	date of publication year	month	day	journal	status	type of plot occupation	design	additional information from journals: caption	designer	user	outcome	location
24	1875	May	28	BN	lower	semi-det.	architect	cottage	W.Young			Bushey
42	1877	Nov	23	BN	upper	detached	architect	villa	N.Shaw			
49	1879	Oct	31	BN	upper	detached	architect	residence	N.Shaw	middle-c.	just erected	Bedford Park-Chiswick
56	1881	Jun	17	BN	upper	detached	architect	vicarage				
72	1887	Dec	30	BN	middle	semi-det.	BNDC	residence	comp.			suburban
77	1889	Jan	25	BN	middle	semi-det.	BNDC	villa	comp.			suburban
81	1889	Oct	18	BN	lower	semi-det.	architect	cottage	F.Chancellor		to be erected	Essex
86	1890	Jan	24	BN	upper	detached	architect	house	Halliday&Anderson	Mr.X	just erected	Llandaff
101	1894	Feb	2	BN	upper	semi-det.	architect	house	G.M.Jay		being erected	nr.Brighton
114	1895	Dec	14	TB	lower	group	architect	cottage	T.P.Figgis	charity		Harrow
116	1897	Apr	2	BN	middle	detached	architect	house	H.A.Crouch	Mr.Esquire		Slough
134	1900	Aug	24	BN	middle	semi-det.	BNDC	villa	comp.			
137	1900	Sep	7	BN	upper	detached	architect	country h.	F.R.Hiorns	Mr.Esquire	to be erected	nr.Coventry
143	1902	Apr	18	BN	middle	semi-det.	BNDC	villa	comp.			suburban
153	1904	Feb	13	TB	middle	semi-det.	architect	cottage	W.A.Harvey		to be erected	Bournville nr.Birmingham
158	1904	Sep	30	BN	middle	semi-det.	architect	house	J.E.K.& J.P.Cutts	Messrs.XY	erected	Watford
159	1904	Nov	19	TB	lower	detached	architect	gardn.'s cot.	E.G.Dawber	Mr. Reverend		Essex
160	1904	Nov	19	TB	middle	detached	architect	cottage	A.Mitchel			Northolt
162	1904	Nov	25	BN	middle	detached	BNDC	doctor's h.	comp.			suburban
191	1908	Nov	20	BN	upper	detached	architect	house	T.N.Dinwiddy	Mr.Architect.		Blackheath
192	1909	Jan	15	BN	upper	detached	architect	house	E.G.Dawber			RothleyTempleEst.
201	1909	May	28	BN	middle	terraced	BNDC	doctor's h.	comp.			a country town
211	1910	Mar	12	TB	middle	group	architect	house				Hampstead Garden Sub.
216	1910	Jul	2	TB	upper	detached	architect	house	Lovegrove&Papworth		just erected	Canterbury
226	1911	Nov	17	BN	middle	group	BNDC	house	comp.			garden suburb

Key to abbreviations: TB - The Builder; BN - The Building News; BNDC - Building News Design Club; BP - Bedford Park; h.- house; cot. - cottage; comp. - competition

Table 4.1a. Prewar British plans. Basic general and syntactic data on minimal living and reworked complexes

	number of spaces				storeys	RRA values minimal living				plus carrier				plus the street			
house	all	fuct.	trans	fn./tr.		av.	min.	max.	D B	av.	min.	max.	BDF	av.	min.	max.	BDF
24	11	6	4	1.5	2	1.493	.829	2.336	.801	1.404	.83	1.978	.858	1.497	.865	2.306	.82
81	13	6	4	1.5	2	1.574	.88	2.255	.837	1.441	.769	2.018	.83	1.444	.722	2.039	.807
114	16	8	5	1.6	2	1.323	.683	1.897	.812	1.258	.649	1.811	.81	1.339	.651	1.952	.787
159	16	7	4	1.7	2	1.413	.797	2.086	.828	1.342	.752	1.845	.851	1.412	.744	1.983	.826
153	18	10	6	1.7	2	1.529	.93	2.603	.793	1.486	.905	2.405	.816	1.6	.933	2.578	.804
116	19	12	5	2.4	2	1.236	.651	2.235	.719	1.161	.623	1.923	.766	1.247	.623	2.158	.722
86	20	13	5	2.6	2	1.25	.701	1.949	.806	1.116	.571	1.486	.834	1.198	.622	1.867	.781
192	22	14	4	3.5	2	1.186	.622	1.911	.771	1.142	.62	1.778	.796	1.222	.676	1.874	.808
137	23	13	5	2.6	2	1.372	.744	2.089	.805	1.169	.637	1.564	.852	1.361	.706	2.063	.793
211	24	12	9	1.3	2	1.315	.695	1.893	.818	1.265	.706	1.792	.84	1.365	.765	2.126	.806
216	25	13	7	1.9	2	1.364	.796	1.991	.843	1.32	.799	.684	.896	1.364	.802	1.86	.867
160	25	12	9	1.3	3	1.584	.941	2.751	.777	1.429	.851	2.109	.845	1.538	.914	2.613	.787
77	27	14	8	1.7	3	1.262	.673	2.18	.745	1.244	.682	2.045	.776	1.278	.703	2.109	.776
143	29	15	12	1.2	3	1.347	.746	2.051	.811	1.328	.762	1.947	.836	1.389	.777	2.136	.81
226	29	13	13	1	3	1.84	1.133	2.74	.851	1.547	.939	2.546	.808	1.758	1.061	2.689	.835
134	30	14	12	1.2	3	1.485	.817	2.423	.781	1.457	.867	2.24	.829	1.539	.9	2.405	.818
42	31	15	11	1.4	4	1.564	.945	2.434	.829	1.471	.9	2.171	.852	1.549	.93	2.366	.834
72	32	14	11	1.3	3	1.554	.95	2.158	.872	1.506	.93	2.036	.883	1.61	.958	2.509	.824
158	33	16	12	1.3	4	1.511	.859	2.26	.826	1.372	.799	1.789	.878	1.503	.815	2.199	.82
162	35	17	12	1.4	3	1.257	.7	1.906	.814	1.225	.702	1.899	.815	1.258	.703	1.902	.817
56	40	19	17	1.1	3	2.035	1.324	3.354	.827	1.815	1.191	2.672	.872	2.007	1.286	3.254	.83
201	42	20	13	1.5	4	1.485	.854	2.119	.846	1.454	.841	2.111	.844	1.471	.849	2.119	.844
49	46	23	19	1.2	3	1.516	.899	2.583	.785	1.496	.906	2.587	.785	1.512	.906	2.587	.787
191	48	21	9	2.3	3	1.287	.713	1.827	.837	1.269	.712	1.82	.837	1.288	.712	1.82	.838
101	57	23	23	1	4	1.925	1.254	2.794	.875	1.892	1.234	2.762	.874	1.925	1.211	2.776	.868
All selected	28.4	14	9.6	1.7	2.7	1.468	.845	2.273	.812	1.384	.807	2.001	.835	1.467	.83	2.241	.812
All prewar	27.9	13	10.6	1.4	2.7	1.536	.911	2.318	.831								
All plans	23.8	11.3	8.5	1.5	2.4	1.508	.888	2.254	.832								

Table 4.1b. Prewar British plans. Basic general and syntactic data on minimal living and reworked complexes for each selected genotype

genotype (min.living)	house	number of spaces: all	fuct.	trans	fn./tr.	no.of storeys	RRA values minimal living: av.	min.	max.	BDF	plus carrier: av.	min.	max.	BDF	plus the street: av.	min.	max.	BDF
E=R>C	153	18	10	6	1.7	2	1.529	.93	2.603	.793	1.486	.905	2.405	.816	1.6	.933	2.578	.804
	116	19	12	5	2.4	2	1.236	.651	2.235	.719	1.161	.623	1.923	.766	1.247	.623	2.158	.722
	86	20	13	5	2.6	2	1.25	.701	1.949	.806	1.116	.571	1.486	.834	1.198	.622	1.867	.781
	77	27	14	8	1.7	3	1.262	.673	2.18	.745	1.244	.682	2.045	.776	1.278	.703	2.109	.776
	134	30	14	12	1.2	3	1.485	.817	2.423	.781	1.457	.867	2.24	.829	1.539	.9	2.405	.818
	42	31	15	11	1.4	4	1.564	.945	2.434	.829	1.471	.9	2.171	.852	1.549	.93	2.366	.834
	162	35	17	12	1.4	3	1.257	.7	1.906	.814	1.225	.702	1.899	.815	1.258	.703	1.902	.817
	56	40	19	17	1.1	3	2.035	1.324	3.354	.827	1.815	1.191	2.672	.872	2.007	1.286	3.254	.83
		27.5	14.2	9.5	1.7	2.7	1.452			.789	1.372			.82	1.459			.798
E>R>C	160	25	12	9	1.3	3	1.584	.941	2.751	.777	1.429	.851	2.109	.845	1.538	.914	2.613	.787
	143	29	15	12	1.2	3	1.347	.746	2.051	.811	1.328	.762	1.947	.836	1.389	.777	2.136	.81
	226	29	13	13	1	3	1.84	1.133	2.74	.851	1.547	.939	2.546	.808	1.758	1.061	2.689	.835
	49	46	23	19	1.2	3	1.516	.899	2.583	.785	1.496	.906	2.587	.785	1.512	.906	2.587	.787
	191	48	21	9	2.3	3	1.287	.713	1.827	.837	1.269	.712	1.82	.837	1.288	.712	1.82	.838
		35.4	16.8	12.4	1.4	3	1.515			.812	1.414			.822	1.497			.811
C>E=R	192	22	14	4	3.5	2	1.186	.622	1.911	.771	1.142	.62	1.778	.796	1.222	.676	1.874	.808
	137	23	13	5	2.6	2	1.372	.744	2.089	.805	1.169	.637	1.564	.852	1.361	.706	2.063	.793
	211	24	12	9	1.3	2	1.315	.695	1.893	.818	1.265	.706	1.792	.84	1.365	.765	2.126	.806
	72	32	14	11	1.3	3	1.554	.95	2.158	.872	1.506	.93	2.036	.883	1.61	.958	2.509	.824
	201	42	20	13	1.5	4	1.485	.854	2.119	.846	1.454	.841	2.111	.844	1.471	.849	2.119	.844
		28.6	14.6	8.4	2.1	2.6	1.382			.822	1.307			.843	1.406			.815
E/C>R	24	11	6	4	1.5	2	1.493	.829	2.336	.801	1.404	.83	1.978	.858	1.497	.865	2.306	.82
	81	13	6	4	1.5	2	1.574	.88	2.255	.837	1.441	.769	2.018	.83	1.444	.722	2.039	.807
	114	16	8	5	1.6	2	1.323	.683	1.897	.812	1.258	.649	1.811	.81	1.339	.651	1.952	.787
	159	16	7	4	1.7	2	1.413	.797	2.086	.828	1.342	.752	1.845	.851	1.412	.744	1.983	.826
		14	6.7	4.2	1.6	2	1.451			.82	1.361			.837	1.423			.81
E>C>R	216	25	13	7	1.9	2	1.364	.796	1.991	.843	1.32	.799	.684	.896	1.364	.802	1.86	.867
	158	33	16	12	1.3	4	1.511	.859	2.26	.826	1.372	.799	1.789	.878	1.503	.815	2.199	.82
	101	57	23	23	1	4	1.925	1.254	2.794	.875	1.892	1.234	2.762	.874	1.925	1.211	2.776	.868
		38.3	17.3	14	1.4	3.3	1.6			.848	1.528			.883	1.597			.852
all selected		28.4	14	9.6	1.7	2.7	1.468			.812	1.384			.835	1.467			.812

Table 4.2a. Prewar British plans. Basic syntactic data on main functions for all complexes.

	RRA values of key functions minimal living						plus carrier							plus the street					
house	Rec.	Eat.	Cook.	BDF	wash.	order	carr.	Rec.	Eat.	Cook.	BDF	wash.	order	st.	Rec.	Eat.	Cook.	wash	order
24	1.809	1.658	•	•	2.336	E/C>R	1.468	1.595	1.468	•	•	1.978	E/C=Ø>R>W	2.306	1.441	1.354	•	1.922	E/C>R>W>S
81	1.375	1.155	•	•	1.65	E/C>R	1.152	1.249	1.057	•	•	1.441	E/C>Ø>R>W	1.742	1.19	1.02	•	1.487	E/C>R>W>S
114	1.214	.986	•	•	1.366	E/C>R	1.264	1.161	.922	•	•	1.196	E/C>R>W>Ø	1.952	1.147	.961	•	1.333	E/C>R>W>S
159	1.783	.797	•	•	1.1	E/C>R	1.366	1.571	.752	•	•	1.025	E/C>W>Ø>R	1.983	1.55	.744	•	1.054	E/C>W>R>S
153	1.488	1.488	1.674	.996	2.107	E=R>C	1.556	1.415	1.415	1.556	.997	1.924	E=R>C=Ø>W	2.578	1.378	1.378	1.422	1.822	E=R>C>W>S
116	1.132	1.132	1.33	.993	1.754	E=R>C	1.143	1.091	.935	1.247	.983	1.455	E>R>Ø>C>W	1.798	1.079	1.079	1.295	1.702	E=R>C>W>S
86	1.169	1.169	1.481	.984	1.949	E=R>C	.911	.983	.983	1.342	.972	1.127	Ø>E=R>C>W	1.467	1.067	1.067	1.422	1.867	E=R>C>S>W
192	1.2	1.2	1.067	.996	1.467	C>E=R	1.034	1.137	1.137	1.013	.996	1.344	C>Ø>E=R>W	1.874	1.14	1.14	1.024	1.41	C>E=R>W>S
137	1.179	1.179	1.075	.998	1.344	C>E=R	.966	.85	1.062	1.043	.988	1.217	R>Ø>C>E>W	1.81	1.122	1.122	1.068	1.339	C>E=R>W>S
211	1.507	1.507	1.468	1	1.894	C>E=R	1.267	1.394	1.394	1.376	1	1.575	Ø>C>E=R>W	2.126	1.412	1.412	1.446	1.854	E=R>C>W>S
216	1.629	1.249	1.484	.986	1.9	E>C>R	1.327	1.497	1.174	1.412	.987	1.65	E>Ø>C>R>W	1.86	1.491	1.186	1.427	1.828	E>C>R>W>S
160	1.575	1.466	1.955	.981	2.335	E>R>C	1.259	1.429	1.361	1.854	.976	1.548	Ø>E>R>W>C	1.812	1.443	1.347	1.844	2.212	E>R>S>C>W
77	1.202	1.202	1.411	.993	1.78	E=R>C	1.378	1.166	1.166	1.348	.994	1.651	E=R>C>Ø>W	1.836	1.148	1.148	1.363	1.721	E=R>C>W>S
143	1.191	1.105	1.664	.959	2.051	E>R>C	1.538	1.171	1.076	1.566	.967	1.865	E>R>Ø>C>W	2.136	1.165	1.087	1.32	2.02	E>R>C>W>S
226	1.578	1.348	1.75	.986	2.023	E>R>C	1.157	1.348	1.252	1.688	.979	1.674	Ø>E>R>C>W	2.097	1.431	1.233	1.653	2.245	E>R>C>S>W
134	1.498	1.498	1.688	.996	2.042	E=R>C	1.592	1.45	1.359	1.605	.994	1.864	E>R>Ø>C>W	2.405	1.443	1.443	1.605	1.864	E=R>C>W>S
42	1.372	1.372	1.437	.999	1.735	E=R>C	1.418	1.295	1.295	1.394	.998	1.64	E=R>C>Ø>W	1.942	1.306	1.306	1.389	1.683	E=R>C>W>S
72	1.69	1.69	1.468	.995	2.158	C>E=R	1.389	1.601	1.601	1.401	.995	2.001	Ø>C>E=R>W	2.509	1.572	1.572	1.443	2.111	C>E=R>W>S
158	1.565	1.236	1.306	.996	1.577	E>C>R	1.125	1.35	1.181	1.271	.996	1.35	Ø>E>C>R=W	2.075	1.435	1.208	1.27	1.538	E>C>R>W>S
162	1.098	1.098	1.163	.999	1.518	E=R>C	1.136	1.074	1.074	1.125	.999	1.476	E=R>C>Ø>W	1.694	1.06	1.06	1.139	1.486	E=R>C>W>S
56	1.748	1.748	2.171	.987	2.436	E=R>C	1.574	1.591	1.591	2.094	.978	2.085	Ø>E=R>W>C	2.508	1.643	1.643	2.095	2.357	E=R>C>W>S
201	1.232	1.232	1.199	1	1.528	C>E=R	1.151	1.198	1.198	1.151	.999	1.476	Ø=C>E=R>W	1.5	1.206	1.206	1.176	1.5	C>E=R>W=S
49	1.525	1.41	1.676	.994	2.295	E>R>C	1.576	1.478	1.353	1.625	.993	2.134	E>R>Ø>C>W	1.743	1.492	1.381	1.653	2.266	E>R>C>S>W
191	1.107	1.07	1.218	.996	1.537	E>R>C	1.245	1.086	1.05	1.187	.906	1.504	E=R>C>Ø>W	1.688	1.074	1.039	1.192	1.506	E>R>C>W>S
101	1.804	1.572	1.598	.995	1.889	E>C>R	1.611	1.745	1.549	1.554	.996	1.776	Ø>E>C>R>W	2.52	1.723	1.536	1.575	1.861	E>C>R>W>S
All selected	1.427	1.303	1.435	.983	1.831		1.304	1.317	1.216	1.362	.985	1.599		1.998	1.326	1.227	1.356	1.76	
All prewar	1.471	1.398	1.524		1.852														
All plans	1.443	1.348	1.437		1.754														

Table 4.2b. Prewar British plans. Basic syntactic data on main functions for prevailing genotypes (all complexes)

	RRA values of key functions minimal living						plus carrier							plus the street					
house	Rec.	Eat.	Cook.	BDF	wash.	order	carr.	Rec.	Eat.	Cook.	BDF	wash.	order	st.	Rec.	Eat.	Cook.	wash	order
153	1.488	1.488	1.674	.996	2.107	E=R>C	1.556	1.415	1.415	1.556	.997	1.924	E=R>C=Ø>W	2.578	1.378	1.378	1.422	1.822	E=R>C>W>S
116	1.132	1.132	1.33	.993	1.754	E=R>C	1.143	1.091	.935	1.247	.983	1.455	E>R>Ø>C>W	1.798	1.079	1.079	1.295	1.702	E=R>C>W>S
86	1.169	1.169	1.481	.984	1.949	E=R>C	.911	.983	.983	1.342	.972	1.127	Ø>E=R>C>W	1.467	1.067	1.067	1.422	1.867	E=R>C>S>W
77	1.202	1.202	1.411	.993	1.78	E=R>C	1.378	1.166	1.166	1.348	.994	1.651	E=R>C>Ø>W	1.836	1.148	1.148	1.363	1.721	E=R>C>W>S
134	1.498	1.498	1.688	.996	2.042	E=R>C	1.592	1.45	1.359	1.605	.994	1.864	E>R>Ø>C>W	2.405	1.443	1.443	1.605	1.864	E=R>C>W>S
42	1.372	1.372	1.437	.999	1.735	E=R>C	1.418	1.295	1.295	1.394	.998	1.64	E=R>C>Ø>W	1.942	1.306	1.306	1.389	1.683	E=R>C>W>S
162	1.098	1.098	1.163	.999	1.518	E=R>C	1.136	1.074	1.074	1.125	.999	1.476	E=R>C>Ø>W	1.694	1.06	1.06	1.139	1.486	E=R>C>W>S
56	1.748	1.748	2.171	.987	2.436	E=R>C	1.574	1.591	1.591	2.094	.978	2.085	Ø>E=R>W>C	2.508	1.643	1.643	2.095	2.357	E=R>C>W>S
	1.338	1.338	1.544	.993	1.915		1.339	1.258	1.227	1.464	.989	1.653		2.028	1.266	1.266	1.466	1.813	
143	1.191	1.105	1.664	.959	2.051	E>R>C	1.538	1.171	1.076	1.566	.967	1.865	E>R>Ø>C>W	2.136	1.165	1.087	1.32	2.02	E>R>C>W>S
226	1.578	1.348	1.75	.986	2.023	E>R>C	1.157	1.348	1.252	1.688	.979	1.674	Ø>E>R>C>W	2.097	1.431	1.233	1.653	2.245	E>R>C>S>W
160	1.575	1.466	1.955	.981	2.335	E>R>C	1.259	1.429	1.361	1.854	.976	1.548	Ø>E>R>W>C	1.812	1.443	1.347	1.844	2.212	E>R>S>C>W
49	1.525	1.41	1.676	.994	2.295	E>R>C	1.576	1.478	1.353	1.625	.993	2.134	E>R>Ø>C>W	1.743	1.492	1.381	1.653	2.266	E>R>C>S>W
191	1.107	1.07	1.218	.996	1.537	E>R>C	1.245	1.086	1.05	1.187	.906	1.504	E=R>C>Ø>W	1.688	1.074	1.039	1.192	1.506	E>R>C>W>S
	1.395	1.28	1.653	.983	2.048		1.355	1.302	1.218	1.584	.964	1.745		1.895	1.321	1.217	1.532	2.05	
192	1.2	1.2	1.067	.996	1.467	C>E=R	1.034	1.137	1.137	1.013	.996	1.344	C>Ø>E=R>W	1.874	1.14	1.14	1.024	1.41	C>E=R>W>S
137	1.179	1.179	1.075	.998	1.344	C>E=R	.966	.85	1.062	1.043	.988	1.217	R>Ø>C>E>W	1.81	1.122	1.122	1.068	1.339	C>E=R>W>S
211	1.507	1.507	1.468	1	1.894	C>E=R	1.267	1.394	1.394	1.376	1	1.575	Ø>C>E=R>W	2.126	1.412	1.412	1.446	1.854	E=R>C>W>S
72	1.69	1.69	1.468	.995	2.158	C>E=R	1.389	1.601	1.601	1.401	.995	2.001	Ø>C>E=R>W	2.509	1.572	1.572	1.443	2.111	C>E=R>W>S
201	1.232	1.232	1.199	1	1.528	C>E=R	1.151	1.198	1.198	1.151	.999	1.476	Ø=C>E=R>W	1.5	1.206	1.206	1.176	1.5	C>E=R>W=S
	1.362	1.362	1.255	.998	1.678		1.161	1.236	1.278	1.197	.996	1.523		1.964	1.29	1.29	1.231	1.643	
24	1.809	1.658	•	•	2.336	E/C>R	1.468	1.595	1.468	•	•	1.978	E/C=Ø>R>W	2.306	1.441	1.354	•	1.922	E/C>R>W>S
81	1.375	1.155	•	•	1.65	E/C>R	1.152	1.249	1.057	•	•	1.441	E/C>Ø>R>W	1.742	1.19	1.02	•	1.487	E/C>R>W>S
114	1.214	.986	•	•	1.366	E/C>R	1.264	1.161	.922	•	•	1.196	E/C>R>W>Ø	1.952	1.147	.961	•	1.333	E/C>R>W>S
159	1.783	.797	•	•	1.1	E/C>R	1.366	1.571	.752	•	•	1.025	E/C>W>Ø>R	1.983	1.55	.744	•	1.054	E/C>W>R>S
	1.545	1.149	•	•	1.613		1.312	1.394	1.05	•	•	1.41		1.996	1.332	1.02	•	1.449	
216	1.629	1.249	1.484	.986	1.9	E>C>R	1.327	1.497	1.174	1.412	.987	1.65	E>Ø>C>R>W	1.86	1.491	1.186	1.427	1.828	E>C>R>W>S
158	1.565	1.236	1.306	.996	1.577	E>C>R	1.125	1.35	1.181	1.271	.996	1.35	Ø>E>C>R=W	2.075	1.435	1.208	1.27	1.538	E>C>R>W>S
101	1.804	1.572	1.598	.995	1.889	E>C>R	1.611	1.745	1.549	1.554	.996	1.776	Ø>E>C>R>W	2.52	1.723	1.536	1.575	1.861	E>C>R>W>S
	1.421	1.303	1.435	.983	1.818		1.304	1.317	1.216	1.362	.985	1.599		1.998	1.326	1.227	1.356	1.76	

Table 4.3a. Prewar British plans. RRA values of all interior spaces (minimal living complex)

House 24

landing	St.	T	lobby	?	kitchen	bed	bed	bed	parlour	scullery
6 >	8 >	5 >	11 >	4 >	9	3 =	2 =	1 >	7 >	10
.829	.904	1.055	1.13	1.507	1.658	1.733			1.809	2.336

House 81

entr.	St.	landing	kitchen	living	T	scullery	bed	store	store	bed	bed	coal
13 >	12 >	5 >	10 >	11 >	3 >	7 >	4 >	8 >	9 >	2 =	1 >	6
.88	.935	1.1	1.155	1.375	1.485	1.65	1.705	1.76	1.98	2.09		2.255

House 114

T	St.	landing	kitchen	store	parlour	bath	porch	T	scullery	bed	bed	bed	bed	larder	coal
15 >	11 >	6 >	10 >	14 =	12 =	13 =	16 >	4 >	9 >	3 =	5 >	1 =	2 >	7 =	8
.683	.759	.91	.986	1.214				1.29	1.366	1.442		1.821		1.897	

House 159

living	St.	landing	scullery	bed	porch	larder	bed	bed	bck.e.	fuel	store	store	parlour	store	e.c.
9 =	8	7	11	3 =	12	10 =	6	4	14	15	2 =	1 =	13	5	16
.797		.873	1.1	1.252		1.328		1.404	1.555	1.631	1.783			1.859	2.086

House 153

landing	St.	T	T	hall	T	bath	drawing	cloaks	dining	box	bed	kitchen	bed	bed	bed	scullery	larder
9 =	11 >	14 >	7 >	15 >	5 >	8 >	12 =	13 =	10 >	6 =	4 >	16 >	3 =	2 =	1 =	18 >	17
.93		.992	1.054	1.302	1.364	1.426	1.488			1.55		1.674	1.86			2.107	2.603

House 116

hall	St.	landing	T	lobby	brkfst.	dining	drawing	bath	bed	bed	dress.	bed	bed	kitchen	coats	wc	scullery	larder
16 >	11 >	8 >	13 >	19 >	9 =	12 =	10 >	4 >	3 =	2 =	7 =	6 =	5 >	14 >	17 >	1 >	18 >	15
.651	.679	.764	.962	1.075	1.132			1.188	1.245					1.33	1.556	1.669	1.754	2.235

Table 4.3b. Prewar British plans. RRA values of all interior spaces (minimal living complex)

House 86

hall	St.	landing	T	T	study	drawing	dining	bed	bath	bed	bed	wc	bed	box	kitchen	store	pantry	store	scullery
19 >	15 >	8 =	20 >	18 >	14 =	16 =	17 >	5 =	6 >	1 =	4 =	7 =	2 =	3 >	10 >	11 =	13 =	12 >	9
.701	.753	.857		1.065	1.169		1.169	1.299		1.325					1.481	1.533			1.949

House 192

landing	St.	hall	T	dress.	bed	bed	kitchen	bed	bed	porch	dining	parlour	store	maid's	bath	wc	sculi	larder	store	store	wash
12 >	16 >	21 >	6 >	7 =	8 >	10 =	15 =	11 =	9 >	22 =	18 =	17 =	19 >	5 =	4 >	3 >	20 >	13 >	1 =	2 >	14
.622	.667	.756	.844	1.044		1.067				1.2				1.244		1.289	1.467	1.511	1.689		1.911

House 137

hall	St.	sevr.	landing	kitchen	entr.	drawing	dining	study	scullery	bed	store	bath	bed	bed	bed	bed	store	cloaks	T	coal	larder	e.c.
21 >	18 >	17 >	8 >	14 >	23 >	16 =	19 =	20 >	13 >	2 =	7 =	6 =	1 =	5 =	4 =	3 >	9 >	22 >	15 >	10 =	11 =	12
.744	.848	.889	.993	1.075	1.137	1.179			1.344	1.427							1.51	1.572	1.654	2.089		

House 211

landing	ST	T	T	T	T	hall	pantry	bed	?	bed	T	kitchen	wc	bath	cloaks	dining	drawing	bed	entr.	bed	bed	scullery	larder
13 >	14 >	15 >	7 >	12 >	9 =	16 >	20 =	3 =	8 =	5 >	6 >	21 =	11 =	10 >	18 =	19 =	24 =	4 =	17 >	2 =	1 >	23 =	22
.695	.734	.811	1.004	1.043	1.082		1.12				1.352	1.468			1.507					1.777		1.893	

House 216

landing	St.	T	T	T	T	wc	hall	bath	dining	bed	bed	bed	kitchen	grd.e.	larder	store	bed	bed	stdy.	drawing	store	store	scullery	store
13 >	20 >	23 >	11 >	17 >	8 >	10 =	25 =	12 =	19 >	6 =	7 >	9 >	16 =	18 >	14 =	15 >	4 >	5 >	24 =	22 >	2 =	3 >	21 >	1
.796	.814	.869	.887	1.104	1.195	1.213			1.249	1.267		1.303	1.484		1.52		1.575	1.611	1.629		1.683		1.9	1.991

House 160

landing	st.	st.	St.	landing	hall	hmc	bed	bed	gdn.e.	st.	dining	bed	bath	wc	bed	drawing	pantry	T	kitchen	bed	bed	scullery	store	larder
11 >	8 =	9 =	19 >	5 >	21 >	10 =	6 =	7 =	17 >	25 >	18 >	2 =	3 =	4 =	1 >	20 >	15 >	24 >	13 >	23 =	22 >	16 >	12 >	14
.941	1.032			1.122	1.158	1.357			1.376	1.43	1.466	1.538				1.575	1.647	1.774	1.955	2.19		2.335	2.371	2.751

Table 4.3c. Prewar British plans. RRA values of all interior spaces (minimal living complex)

House 77

landing	St.	hall	st.	T	bed	T	bed	bed	T	store	cloaks	drawing	dining	porch	wc	linen	bath	kitchen	pantry	box	bed	bed	bed	bed	scully.	larder
15 >	21 >	26 >	12 >	11 >	10 =	20 =	14 =	13 >	6 >	25 =	24 =	22 =	23 =	27 >	8 =	9 =	7 >	17 >	18 >	5 =	4 =	1 =	2 =	3 >	19 >	16
.673	.721	.802	.882	.978	1.074				1.122	1.202					1.379			1.411	1.475	1.523					1.78	2.18

House 143

landing	St.	T	st.	T	T	dining	bed	bed	bed	hall	T	drawing	landing	grdn.e.	T	bed	pantry	entr.	wc	bed	bed	bed	tanks	kitchen	bath	wc	scully.	larder
16 >	19 >	23 >	11 >	14 >	24 >	20 >	12 =	13 =	10 >	27 =	18 >	17 >	7 >	28 >	9 >	8 >	21 >	29 =	15 >	3 =	2 =	1 =	4 >	25 >	6 =	5 >	26 >	22
.746	.76	.803	.99	1.019	1.033	1.105	1.133			1.162		1.191	1.262	1.334	1.348	1.406	1.42	1.549		1.65			1.65	1.664	1.736		2.051	2.051

House 226

landing	St.	hall	T	dining	T	T	st.	T	sit.	cloaks	bed	bed	landing	kitchen	bath	bed	wc	grdn.e.	T	scully.	box	trdrs'.e.	T	store	coal	bed	bed	wc
15 >	17 >	21 >	13 >	20 =	22 >	14 >	9 >	27 >	16 =	18 >	8 =	7 >	6 >	23 >	11 =	10 =	12 =	29 >	4 =	24 >	5 >	28 =	3 >	19 >	26 =	2 =	1 =	25
1.133	1.148	1.191	1.262	1.348		1.435	1.478	1.506	1.578		1.65		1.721	1.75	1.822			1.894	2.023		2.109	2.353		2.41	2.74			

House 134

landing	T	St.	T	st.	hall	bed	bed	bay	T	T	landing	T	bed	vestib.	dining	drawing	kitchen	bed	bath	hmc	bed	wc	tanks	bed	box	porch	scully.	store	larder
17 >	19 >	21 >	15 >	16 >	25 >	13 =	14 >	18 >	12 =	11 =	5 >	23 =	10 >	29 >	20 =	22 >	27 >	1 =	8 =	7 =	6 =	9 =	3 =	2 =	4 >	30 >	28 >	24 >	26
.817	.871	.98	1.007	1.062	1.116	1.198		1.253	1.334			1.389		1.47	1.498		1.688	1.715								1.852	2.042	2.069	2.423

House 42

T	St.	landing	hall	T	st.	T	wc	bed	lobby	bed	bed	drawing	dining	kitchen	st.	landing	bath	bed	store	library	scully.	beer	bed	bed	bed	bed	T	wine	larder	boots
22 >	17 >	23 >	5 >	14 >	1 >	29 >	27 >	26 >	3 >	25 =	24 >	10 =	11 >	13 >	15 >	2 >	31 =	30 >	28 >	12 >	7 >	18 >	16 =	4 =	21 =	20 >	6 >	19 >	9 =	8
.945	.958	.984	.997	1.165	1.23	1.308	1.32	1.333	1.346	1.359		1.372		1.437	1.489	1.502	1.683		1.709	1.722	1.735	1.838	1.877			1.877	2.058	2.214	2.434	

House 72

St.	T	T	hall	T	trds.e.	cloaks	hall	bed	bed	bath	dress.	bed	st.	kitchen	hmc	?	wc	T	drawing	entr.	dining	lobby	pantry	store	wc	box	bed	bed	bed	scullery
16 =	17 >	9 >	18 >	7 >	24 >	19 >	20 >	12 =	13 =	14 =	10 =	11 >	6 >	26 >	8 >	25 >	32 =	5 >	22 =	23 =	21 >	29 >	28 =	27 >	15 >	4 =	3 =	1 =	2 >	31 >
.95	.95	.974	1.024	1.147	1.221	1.295	1.32	1.344					1.394	1.468	1.492	1.591	1.665		1.69			1.788	1.838		1.862	2.035				2.158
>	larder																													
	30																													

Table 4.3d. Prewar British plans. RRA values of all interior spaces (minimal living complex)

House 158

hall	T	St.	landing	T	T	entr.	dining	study	kitchen	st.	bed	bed	bed	grdn.e.	pantry	bed	wc	bath	st.	drawing	scully.	landing	lavtry.	cellar	T	larder	bed	box	bed	wc
28 >	23 >	18 >	12 =	24 >	22 >	32 >	17 =	19 >	25 >	8 >	6 =	7 =	5 =	21 =	20 =	9 =	11 =	10 >	16 >	27 >	30 >	4 >	15 >	14 >	33 >	26 >	3 =	1 =	2 >	13 >
.859	.871	.953	1.059		1.106	1.201	1.236		1.306	1.33	1.424								1.448	1.565	1.577	1.624	1.765	1.813	1.895	1.942	1.989			2.13
wc	coals																													
>	29 =	31																												
	2.26																													

House 162

landing	St.	hall	T	st.	T	T	bed	consult.	bed	bed	bed	entr.	drawing	dining	kitchen	T	landing	store	wait.lby.	store	bath	wc	dress.	store	T	lavtry.	scully.	T	bed	box
18 >	22 >	30 >	25 >	12 >	11 >	14 >	13 >	31 >	17 =	16 >	15 >	34 =	24 =	23 >	29 >	32 >	5 >	19 >	35 >	8 =	6 =	7 =	9 >	10 >	33 >	26 >	21 >	2 >	4 =	3 >
.7	.711	.743	.894	.948	.991	1.012	1.034	1.045	1.055		1.055	1.098			1.163	1.174	1.217	1.249	1.26	1.346			1.346	1.368	1.475	1.508	1.518	1.551	1.572	
	larder	coals	wc	bed																										
>	27 =	28 >	20 >	1																										
	1.831		1.863	1.906																										

House 56

st.	T	landing	St.	hall	st.	T	T	T	work r.	bed	bed	dress.	lobby	T	dining	drawing	st.	wine	T	btlr's p.	dress.	bed	wc	study	landing	kitchen	bath	wc	hmc	scully.
20 =	22 =	13 >	23 >	24 >	12 >	28 >	14 =	11 >	21 =	17 >	16 =	19 >	25 =	31 >	27 =	26 >	10 =	30 >	9 >	33 >	18 >	15 >	32 =	29 >	5 >	34 >	6 =	7 =	8 >	36 >
1.324			1.359	1.412	1.483	1.553	1.642		1.659		1.668		1.73		1.748		1.889		1.924	1.942	1.959	1.977	2.065		2.154	2.171	2.26		2.26	2.436
	landing	bed	larder	bck.e.	bed	bed	T	coals	wc																					
>	4 >	3 >	35 >	37 >	2 =	1 >	38 >	40 =	39																					
	2.454	2.489	2.507	2.719	2.789		3.019	3.354																						

House 201

landing	St.	hall	st.	T	st.	T	bed	T	kitchen	consult.	entr.	drawing	dining	store	T	T	bath	bed	bed	bed	T	surgery	lavtry.	larder	scully.	T	bed	hmc	wc	store
22 >	29 >	36 >	20 >	21 >	32 >	11 >	19 =	28 >	27 >	35 >	37 >	30 =	31 =	33 >	10 >	14 >	18 =	15 =	16 =	17 >	38 >	34 >	26 >	25 =	24 >	9 >	8 >	13 =	12 >	42 =
.854	.871	.904	1.002	1.068	1.15	1.167	1.183		1.199	1.208	1.216	1.232			1.347	1.364	1.397			1.397	1.413	1.487	1.495	1.528		1.561	1.676	1.692		1.742
	coal	drugs	wine	T	wc	box	wc	bed	bath	bed	bed																			
=	39 =	40 =	41 >	7 >	23 >	6 =	4 =	2 =	5 =	1 =	3																			
				1.791	1.824	2.119																								

Table 4.3e. Prewar British plans. RRA values of all interior spaces (minimal living complex)

House 49

landing	st.	T	st.	St.	st.	T	T	landing	hall	bed	bath	bed	bed	wc	T	srvry.	dining	T	T	pantry	dress.	dress.	bed	bed	lavtry.	cistern	bed	bed	n.nusry.	bness.
25 >	26 >	30 >	19 >	37 >	27 >	18 =	21 >	14 >	43 >	17 =	23 =	24 =	20 =	22 >	31 >	32 >	38 >	9 >	46 >	39 >	16 =	13 =	12 =	15 >	36 >	11 =	10 =	8 =	7 >	35 >
.899	.928	.971	1.043	1.115	1.137	1.187		1.201	1.209	1.216					1.259	1.403	1.41	1.432	1.475	1.496	1.504				1.511	1.518				1.525
	drawing	kitchen	bed	T	store	wc	st.	T	d.nusry.	larder	bed	store	T	scully.	belvedere															
>	34 >	41 =	6 >	44 >	28 >	29 >	4 >	45 >	3 =	33 =	5 >	40 >	2 >	42 >	1															
	1.525	1.676		1.691	1.719	1.827	1.964	1.978	1.993			2.007	2.266	2.295	2.583															

House 191

landing	St.	ent.hall	st.	T	T	T	bed	bath	bed	dining	hall	entr.	study	bed	bath	kitchen	hmc	bed	wc	bed	pantry	bed	bed	cloth.ste.	lin.ste.	store	store	box	lavtry.	store
31 >	40 >	43 >	24 >	23 >	20 >	36 >	22 =	26 =	25 >	38 >	39 >	45 >	41 >	17 =	18 =	35 >	19 =	15 =	16 >	8 >	37 =	9 =	10 >	11 =	13 =	12 =	14 =	7 >	29 >	30 >
.713	.765	.832	.839	.928	.98	1.003	1.032			1.07	1.107	1.136	1.151	1.218			1.248		1.248	1.27	1.285			1.3					1.307	1.322
	cycles	T	dress.	scully.	store	cistern	store	store	store	wc	wc	larder	wine	wardrobe																
>	44 =	42 >	6 >	28 =	27 >	2 =	3 >	4 =	5 =	21 >	32 =	34 =	33 >	1																
	1.456		1.508	1.537		1.589		1.604		1.627	1.775			1.827																

House 101

landing	T	St.	T	T	st.	landing	st.	T	dining	T	T	kitchen	balcony	st.	dress.	T	T	bed	T	library	entr.	drawing	landing	T	lavtry.	scully.	pantry	T	bed	balcony
34 >	29 =	30 >	25 >	32 >	23 >	22 >	57 >	38 >	27 >	56 >	31 =	37 >	24 >	17 >	20 =	21 >	18 >	19 >	55 >	36 =	40 =	35 >	10 >	54 >	28 >	39 =	33 >	52 >	15 >	14 =
1.254	1.281		1.318	1.328	1.376	1.445	1.45	1.513	1.572	1.582	1.598		1.609	1.63	1.704		1.715	1.736	1.757	1.804			1.826	1.852	1.879	1.889		1.953	1.963	1.995
	bed	wc	bath	wine	T	T	bed	bed	bed	store	store	wc	T	T	coals	store	balcony	box	bed	store	store	T	larder	?	coals	wc				
>	16 >	13 =	12 >	53 >	7 >	6 =	5 >	8 =	9 >	51 =	50 >	26 >	48 =	47 =	49 >	46 >	11 >	4 =	3 >	1 =	2 >	44 >	42 =	43 >	45 >	41				
	2.006		2.048	2.096	2.106		2.117	2.117	2.143		2.17	2.223			2.244	2.254	2.387		2.397		2.503	2.514		2.524	2.794					

Table 4.4a. Wartime and postwar British plans. Basic general and syntactic data on minimal living and reworked complexes

				number of spaces				storeys	RRA values minimal living				plus carrier	plus the street
house	year	month	day	all	fuct.	trans	Fun/Tr.		av.	min.	max.	BDF	av.	av.
331	1921	Apr	29	11	6	3	2	1	1.192	.527	1.733	.757	1.117	1.235
253	1916	Nov	15	13	6	5	1.2	2	1.861	1.21	2.914	.848	1.483	1.717
481	1930	Feb	7	14	6	5	1.2	2	1.373	.769	1.826	.861	1.32	1.385
326	1921	Apr	1	15	6	5	1.2	2	1.66	1.02	2.294	.875	1.389	1.56
399	1925	Feb	20	15	7	6	1.2	2	1.252	.595	1.912	.761	1.176	1.262
332	1921	May	20	16	6	6	1	2	1.802	1.176	2.466	.894	1.547	1.681
357	1923	Feb	16	16	6	5	1.2	2	1.271	.721	1.707	.862	1.246	1.262
449	1927	Dec	30	16	7	5	1.4	2	1.342	.683	2.276	.738	1.266	1.337
457	1928	Apr	27	16	5	6	.8	2	1.351	.759	2.124	.803	1.29	1.347
351	1922	Sep	29	17	8	7	1.1	2	1.64	.957	2.46	.833	1.532	1.605
470	1929	Feb	15	17	8	7	1.1	2	1.559	.888	2.221	.844	1.45	1.522
263	1918	Feb	20	18	7	8	.9	2	1.946	1.209	2.944	.848	1.823	1.889
419	1926	Sep	17	20	6	7	.9	2	1.481	.909	2.001	.882	1.411	1.475
401	1925	Mar	20	39	24	12	2	3	1.403	.761	2.007	.828	1.364	1.424
				17.4	7.7	6.2	1.2	2	1.509	.870	2.206	.831	1.387	1.479

Table 4.5a. Wartime and postwar British plans. Basic syntactic data on main functions for all complexes.

	RRA values of key functions minimal living					plus carrier						plus the street					
house	Rec.	Eat.	Cook.	wash.	order	carr.	Rec.	Eat.	Cook.	wash.	order	st.	Rec.	Eat.	Cook.	wash.	order
331	1.733	.527	•	1.582	E/C > W > R	1.149	1.532	.511	•	1.404	E/C>Ø>W>R	1.925	1.43	.65	•	1.54	E/C>R>W>S
253	2.035	1.265	1.815	•	E > C/W > R	1.153	1.922	1.153	1.634	•	Ø=E>C/W>R	2.314	1.859	1.1	1.707	•	E>C/W>R>S
481	•	1.826	1.153	•	C/W > R/E	1.402	•	1.657	1.02	•	C/W>Ø>R/E	2.011	•	1.555	1.1	•	C/W>R/E>S
326	1.572	1.147	1.359	•	E > C/W > R	1.024	1.328	1.062	1.252	•	Ø>E>C/W>R	2.139	1.333	1.023	1.271	•	E>C/W>R>S
399	•	1.147	.892	•	C/W > R/E	1.176	•	1.1	.835	•	C/W>R/E>Ø	1.845	•	1.093	.888	•	C/W>R/E>S
332	1.707	1.328	•	1.555	E/C > W > R	1.196	1.469	1.23	•	1.435	Ø>E/C>W>R	1.921	1.488	1.178	•	1.426	E/C>W>R>S
357	1.252	1.252	1.176	•	C/W > E = R	1.435	1.196	1.196	1.059	•	C/W>E=R>Ø	1.572	1.196	1.196	1.127	•	C/W>E=R>S
449	1.442	1.442	1.29	1.745	C > E = R > W	1.162	1.23	1.332	1.196	1.537	Ø>C>R>E>W	2.037	1.245	1.245	1.132	1.556	C>E=R>S
457	•	1.29	1.138	•	C/W > R/E	1.367	•	1.23	1.059	•	C/W>R/E>Ø	1.952	•	1.209	1.085	•	C/W>R/E>S
351	1.913	1.196	1.503	•	E > C/W > R	1.395	1.643	1.147	1.395	•	E>Ø>C/W>R	2.094	1.67	1.132	1.443	•	E>C/W>R>S
470	1.776	1.776	1.127	•	C/W > E = R	1.302	1.55	1.55	1.054	•	C/W>Ø>E=R	1.981	1.556	1.556	1.075	•	C/W>E=R>S
263	1.705	1.333	1.519	•	E > C/W > R	1.5	1.613	1.245	1.358	•	E>C/W>Ø>R	2.338	1.559	1.249	1.455	•	E>C/W>R>S
419	1.377	1.377	1.169	•	C/W > E = R	1.367	1.199	1.319	1.103	•	C/W>R>E>Ø	2	1.289	1.289	1.111	•	C/W>E=R>S
401	1.494	1.228	1.384	•	E > C/W > R	1.306	1.377	1.103	1.333	•	E>Ø>C/W>R	2.06	1.43	1.2	1.362	•	E>C/W>R>S
	1.637	1.295	1.294	1.628		1.281	1.46	1.202	1.191	1.459		2.013	1.46	1.191	1.23	1.507	

Table 4.4b. Wartime and postwar British plans. Basic general and syntactic data on minimal living and reworked complexes for each selected genotype

					number of spaces				storeys	RRA values minimal living				plus carrier	plus the street
genotype	house	year	month	day	all	fuct.	trans	Fun/Tr.		av.	min.	max.	BDF	av.	av.
E>C>R	253	1916	Nov	15	13	6	5	1.2	2	1.861	1.21	2.914	.848	1.483	1.717
	326	1921	Apr	1	15	6	5	1.2	2	1.66	1.02	2.294	.875	1.389	1.56
	351	1922	Sep	29	17	8	7	1.1	2	1.64	.957	2.46	.833	1.532	1.605
	263	1918	Feb	20	18	7	8	.9	2	1.946	1.209	2.944	.848	1.823	1.889
	401	1925	Mar	20	39	24	12	2	3	1.403	.761	2.007	.828	1.364	1.424
					20.4	10.2	7.4	1.3	2.2	1.702			.846	1.518	1.639
C>E=R	357	1923	Feb	16	16	6	5	1.2	2	1.271	.721	1.707	.862	1.246	1.262
	449	1927	Dec	30	16	7	5	1.4	2	1.342	.683	2.276	.738	1.266	1.337
	470	1929	Feb	15	17	8	7	1.1	2	1.559	.888	2.221	.844	1.45	1.522
	419	1926	Sep	17	20	6	7	.9	2	1.481	.909	2.001	.882	1.411	1.475
					17.25	6.75	6	1.15	2	1.413			.831	1.343	1.399
E/C>R	331	1921	Apr	29	11	6	3	2	1	1.192	.527	1.733	.757	1.117	1.235
	332	1921	May	20	16	6	6	1	2	1.802	1.176	2.466	.894	1.547	1.681
					13.5	6	4.5	1.5	1.5	1.497			.825	1.332	1.458
C>R/E	481	1930	Feb	7	14	6	5	1.2	2	1.373	.769	1.826	.861	1.32	1.385
	399	1925	Feb	20	15	7	6	1.2	2	1.252	.595	1.912	.761	1.176	1.262
	457	1928	Apr	27	16	5	6	.8	2	1.351	.759	2.124	.803	1.29	1.347
					15	6	5.7	1.1	2	1.325			.808	1.262	1.331
					17.4	7.7	6.2	1.2	2	1.509			.831	1.387	1.479
all post-1914	(256 cases)				19.9	9.8	6.5	1.6	2.1	1.48			.833		

Table 4.5b. Wartime and postwar British plans. Basic syntactic data on main functions for prevailing genotypes (all complexes)

		RRA values of key functions																
	no. of	minimal living					plus carrier						plus the street					
genotype	plan	Rec.	Eat.	Cook.	wash.	order	carr.	Rec.	Eat.	Cook.	wash.	order	st.	Rec.	Eat.	Cook.	wash.	order
E>C>R	253	2.035	1.265	1.815	•	E > C/W > R	1.153	1.922	1.153	1.634	•	Ø=E>C/W>R	2.314	1.859	1.1	1.707	•	E>C/W>R>S
	326	1.572	1.147	1.359	•	E > C/W > R	1.024	1.328	1.062	1.252	•	Ø>E>C/W>R	2.139	1.333	1.023	1.271	•	E>C/W>R>S
	351	1.913	1.196	1.503	•	E > C/W > R	1.395	1.643	1.147	1.395	•	E>Ø>C/W>R	2.094	1.67	1.132	1.443	•	E>C/W>R>S
	263	1.705	1.333	1.519	•	E > C/W > R	1.5	1.613	1.245	1.358	•	E>C/W>Ø>R	2.338	1.559	1.249	1.455	•	E>C/W>R>S
	401	1.494	1.228	1.384	•	E > C/W > R	1.306	1.377	1.103	1.333	•	E>Ø>C/W>R	2.06	1.43	1.2	1.362	•	E>C/W>R>S
C>E=R		1.744	1.234	1.516			1.276	1.576	1.142	1.394			2.189	1.57	1.141	1.448		
	357	1.252	1.252	1.176	•	C/W > E = R	1.435	1.196	1.196	1.059	•	C/W>E=R>Ø	1.572	1.196	1.196	1.127	•	C/W>E=R>S
	449	1.442	1.442	1.29	1.745	C > E = R > W	1.162	1.23	1.332	1.196	1.537	Ø>C>R>E>W	2.037	1.245	1.245	1.132	1.556	C>E=R>S
	470	1.776	1.776	1.127	•	C/W > E = R	1.302	1.55	1.55	1.054	•	C/W>Ø>E=R	1.981	1.556	1.556	1.075	•	C/W>E=R>S
	419	1.377	1.377	1.169	•	C/W > E = R	1.367	1.199	1.319	1.103	•	C/W>R>E>Ø	2	1.289	1.289	1.111	•	C/W>E=R>S
E/C>R		1.462	1.462	1.19	1.745		1.316	1.293	1.349	1.103	1.537		1.898	1.321	1.321	1.111	1.556	
	331	1.733	.527	•	1.582	E/C > W > R	1.149	1.532	.511	•	1.404	E/C>Ø>W>R	1.925	1.43	.65	•	1.54	E/C>R>W>S
	332	1.707	1.328	•	1.555	E/C > W > R	1.196	1.469	1.23	•	1.435	Ø>E/C>W>R	1.921	1.488	1.178	•	1.426	E/C>W>R>S
C>R/E		1.72	.928		1.569		1.172	1.5	.87		1.419		1.923	1.459	.914		1.483	
	481	•	1.826	1.153	•	C/W > R/E	1.402	•	1.657	1.02	•	C/W>Ø>R/E	2.011	•	1.555	1.1	•	C/W>R/E>S
	399	•	1.147	.892	•	C/W > R/E	1.176	•	1.1	.835	•	C/W>R/E>Ø	1.845	•	1.093	.888	•	C/W>R/E>S
	457	•	1.29	1.138	•	C/W > R/E	1.367	•	1.23	1.059	•	C/W>R/E>Ø	1.952	•	1.209	1.085	•	C/W>R/E>S
			1.421	1.061			1.315		1.329	.971			1.936		1.286	1.024		
all selected		1.637	1.295	1.294	1.628		1.281	1.46	1.202	1.191	1.459		2.013	1.46	1.191	1.23	1.507	
all post-1914		1.417	1.3	1.353	1.564													

Table 4.6a. Wartime and postwar British plans. RRA values for all interior spaces (minimal living complex)

House 331

living	T	T	entr.	bed	pantry	bed	bed	coals	scullery	parlour
8 >	7 >	9 >	6 >	2 =	1 =	3 =	4 >	10 =	11 >	5
.527	.603	.904	1.055	1.281				.582		1.733

House 253

T	St.	living	T	T	scullery	bed	parlour	bed	bed	T	store	wc
7 >	6 =	8 >	5 =	9 >	11 >	2 >	10 =	4 =	3 >	12 >	1 >	13
1.21	1.265		1.43		1.815	1.925	2.035			2.31	2.529	2.914

House 481

T	St	landing	scullery	entr.	T	store	bed	bed	store	larder	b/wc	bed	living
12 =	8 >	6 >	13 >	14 =	4 >	7 >	3 =	5 >	10 =	9 >	1 =	2 =	11
.769		.865	1.153	1.249		1.345	1.442		1.73		1.826		

House 326

entr.	St.	living	landing	scullery	T	parlour	bed	bath	bck.e.	larder	bed	bed	wc	coal
15 >	13 >	12 >	6 >	10 >	4 =	14 >	3 =	5 =	11 >	7 >	1 =	2 >	8 =	9
1.02	1.062	1.147	1.19	1.359	1.572		1.742			1.912	2.124		2.294	

House 399

hall	St	kitchen	landing	entr.	wc	living	bck.e.	larder	bed	bed	bath	bed	store	fuel
13 >	9 >	10 >	5 >	15 >	8 =	7 >	14 >	6 >	2 =	1 =	4 =	3 >	12 >	11
.595	.722	.892	.935	1.062	1.147		1.359	1.444	1.487				1.614	1.912

Table 4.6b. Wartime and postwar British plans. RRA values for all interior spaces (minimal living complex)

House 332

St.	entr.	landing	living	T	scullery	parlour	T	bck.e.	bathe	bed	larder	bed	bed	wc	coal
14 =	16 >	7 >	15 >	6 >	11 >	13 >	4 >	12 =	5 =	3 >	8 >	2 =	1 >	9 =	10
1.176		1.252	1.328	1.404	1.555	1.707	1.783	1.935			2.086	2.314		2.466	

House 357

St.	hall	landing	T	kitchen	entr.	store	dining	living	linen	bed	bed	b/wc	bed	wc	larder
11 =	15 >	8 >	6 >	10 =	5 >	14 =	13 =	12 >	7 >	1 =	3 =	4 =	2 >	16 =	9
.721		.797	1.024	1.176		1.252			1.328	1.555				1.707	

House 449

landing	St.	hall	T	T	bed	bed	kitchen	dining	drawing	wc	bath	box	bed	scullery	larder
9 >	10 >	11 >	7 =	8 >	4 =	3 >	14 >	12 =	13 >	1 =	6 =	5 =	2 >	15 >	16
.683	.759	.91	1.062		1.214		1.29	1.442		1.593				1.745	2.276

House 457

St.	T	landing	T	scullery	entr.	living	larder	linen	bed	bck.e.	wc	bed	bed	bath	coal
11 =	14 >	7 >	4 =	10 >	16 >	12 =	13 >	6 =	5 >	9 >	1 =	3 =	2 >	15 >	8
.759		.835	1.138		1.214	1.29		1.366		1.593	1.669			1.745	2.124

House 351

T	St.	landing	living	T	entr.	wc	scullery	bed	T	bed	parlour	bck.e.	larder	bath	bed	coal
15 >	13 >	7 >	12 >	6 >	17 >	14 >	10 >	5 >	4 >	3 >	16 >	11 >	8 >	1 =	2 >	9
.957	.991	1.093	1.196	1.332	1.401	1.469	1.503	1.606	1.708	1.845	1.913	1.947	2.016	2.221		2.46

House 470

T	St.	landing	kitchen	entr.hall	T	bck.e.	b/wc	bed	larder	T	living	dining	wc	coal	bed	bed
15 >	9 >	7 >	10 >	17 >	5 >	16 >	6 =	4 >	8 >	3 >	13 =	14 >	11 =	12 >	2 =	1
.888	.922	1.025	1.127	1.264	1.332	1.503	1.537		1.64	1.708	1.776		2.016		2.221	

Table 4.6c. Wartime and postwar British plans. RRA values for all interior spaces (minimal living complex)

House 263

T	St.	living	T	scullery	landing	sitting	entr.	T	bed	st.	bed	bed	bath	store	T	store	coal
9 >	8 >	11 >	7 >	12 >	5 >	10 =	18 >	13 >	6 >	14 >	4 =	3 =	2 =	1 >	15 >	17 =	16
1.147	1.209	1.271	1.333	1.457	1.581	1.643		1.705	1.829	2.014	2.076				2.386	2.882	

House 419

St	T	landing	T	kitchen	T	hall	drawing	dining	bed	lavtry.	bed	larder	store	bed	wc	linen	bath	wc	store
10 =	11 >	9 >	8 >	14 >	7 =	13 >	15 =	12 >	6 =	18 =	5 >	17 >	16 =	4 =	3 =	1 =	2 >	20 =	19
.909		.961	1.065	1.169	1.325		1.377		1.533			1.637	1.793					2.001	

House 320

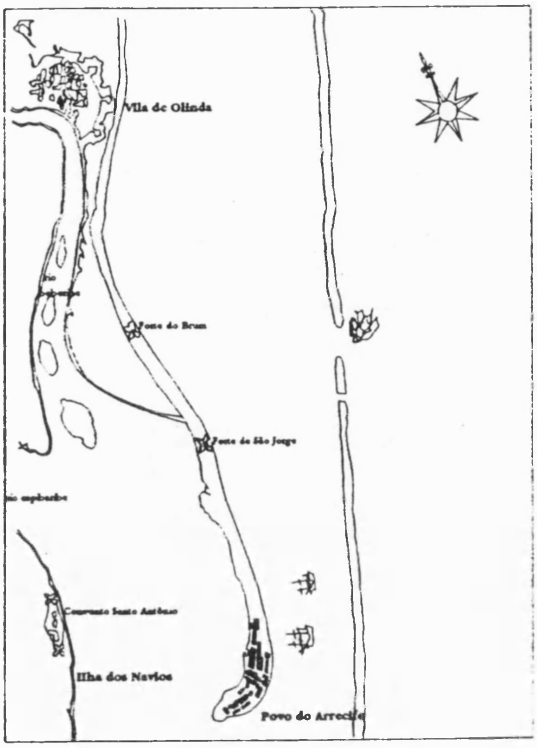
landing	T	St.	T	entr.hall	T	bed	kitchen	T	bed	drawing	dining	bed	bed	wc	linen	bath	scullery	pantry	bed
13 =	12 >	14 >	11 =	15 >	10 >	2 >	18 >	9 >	3 =	16 =	17 =	5 =	4 >	7 =	8 =	6 >	21 >	20 >	1
.889		.978	1.111		1.2	1.333	1.378	1.511	1.556					1.644			1.733	1.822	1.956
	coal	larder																	
>	22 =	19																	
	2.178																		

House 401

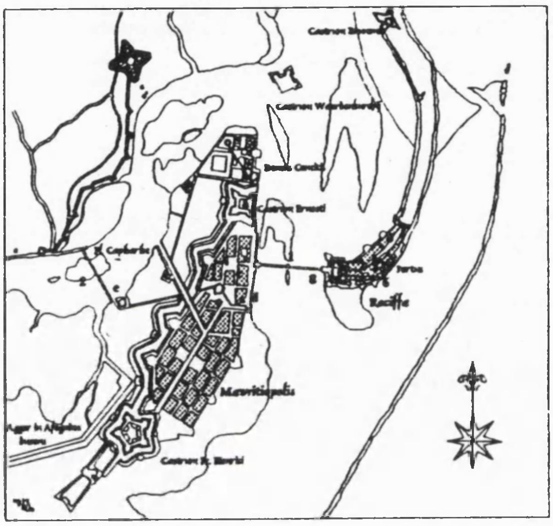
landing	St.	hall	st.	T	T	landing	T	T	dining	T	d.nurs.	n.nurs.	n.nurs.	b/wc(ch)	store	bed	dress	wc	bath
23 >	27 >	30 >	21 >	22 >	20 >	10 >	28 >	37 >	31 >	8 >	16 >	17 =	15 >	19 =	18 >	13 =	14 =	11 =	12
.761	.825	.907	.916	1.008	1.026	1.09	1.118	1.173	1.228	1.301	1.329	1.338		1.347		1.356			
	kitchen	bed	mds'.sit.	pantry	drawing	lavtry.	entr.	bed	bed	store	bed	bed	recess	tanks	bck.e.	wc	larder	coal	wc
>	33 >	9 >	25 =	24 >	32 =	29 >	39 >	5 =	4 >	1 =	7 =	6 =	3 =	2 >	38 >	26 >	34 =	35 =	36
	1.384	1.429	1.457		1.494		1.512	1.631		1.64					1.668	1.833	2.007		

CHAPTER 5

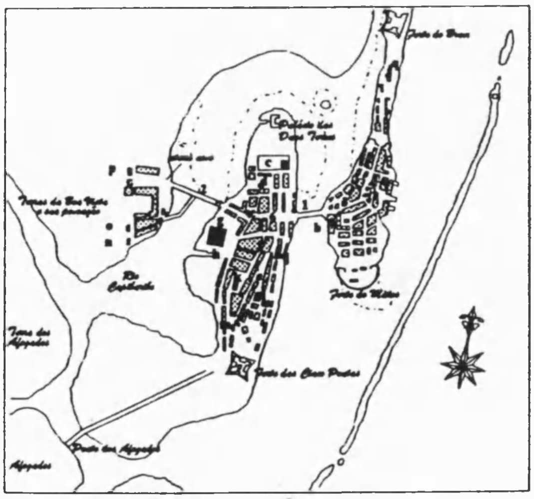
Figure 5. Maps of Recife at successive time periods.



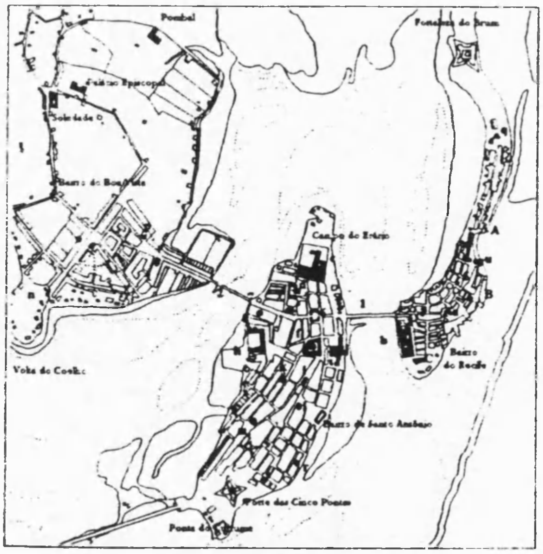
a (1631)



b (1648)



c (1749)

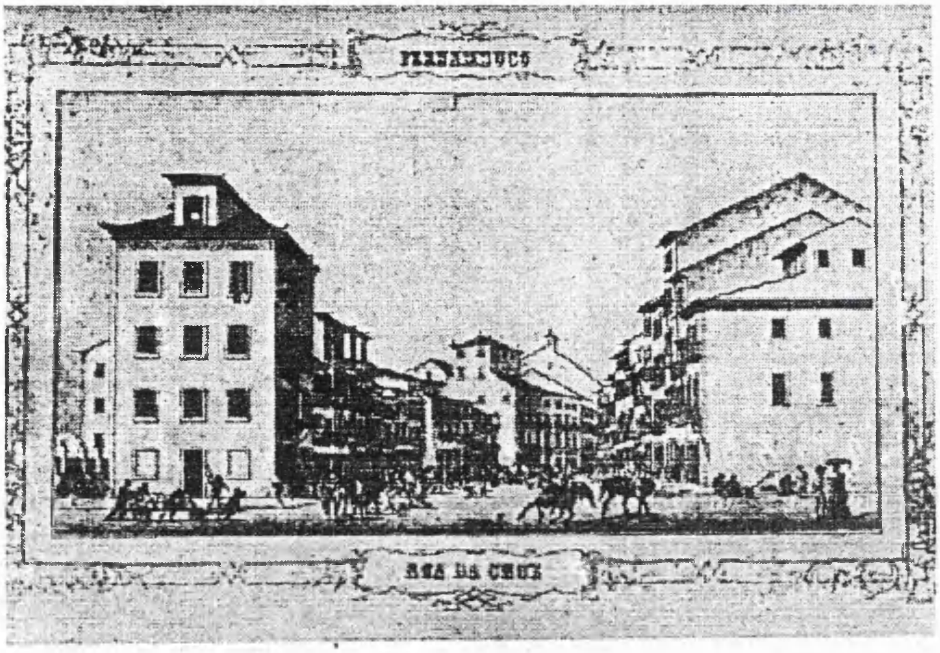


d (1827)

Figure 5.1. Map of Recife, late nineteenth century (c. 1876)

The squares indicate settlements along the banks of the Capibaribe river

Figure 5.2. View of central Recife, mid-nineteenth century.



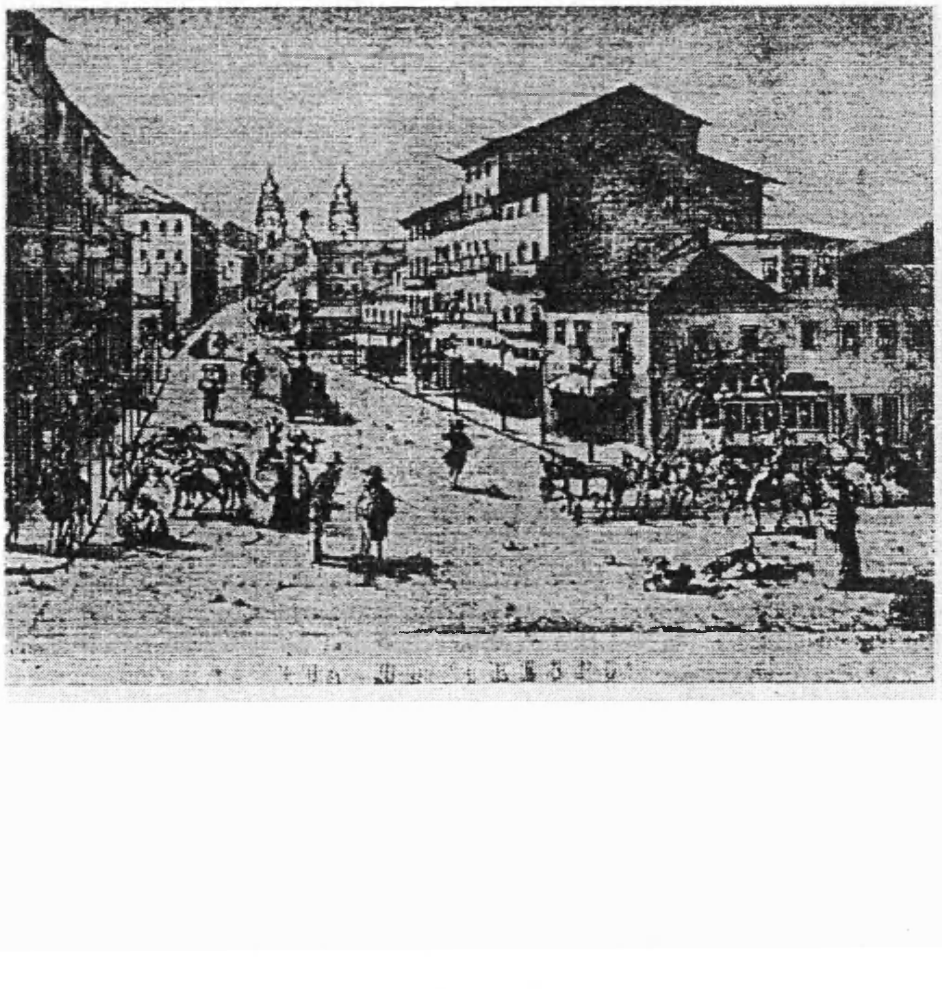


Figure 5.3. View of Central Recife, late nineteenth century

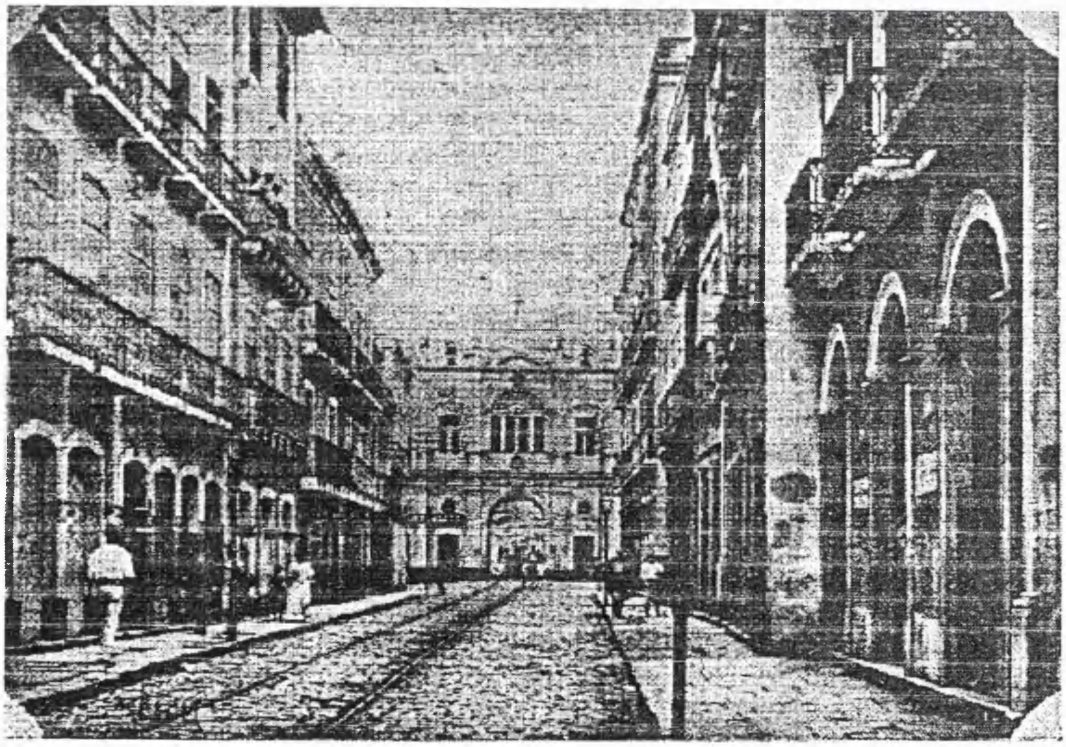
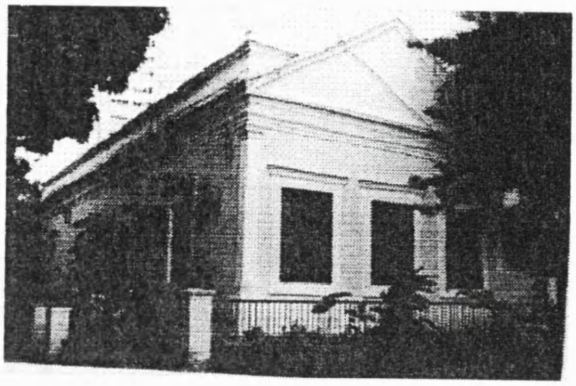


Figure 5.4. Surviving pre-modernist buildings of Recife

a



b

c

d

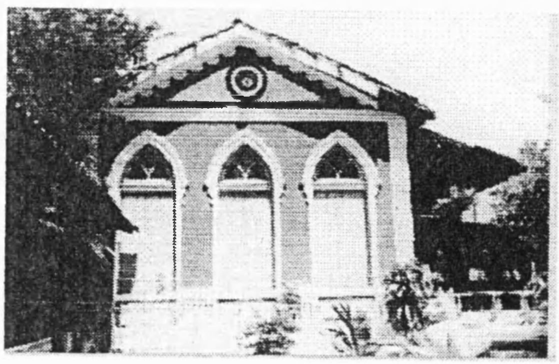


Figure 5.5. Surviving pre-modernist buildings of Recife

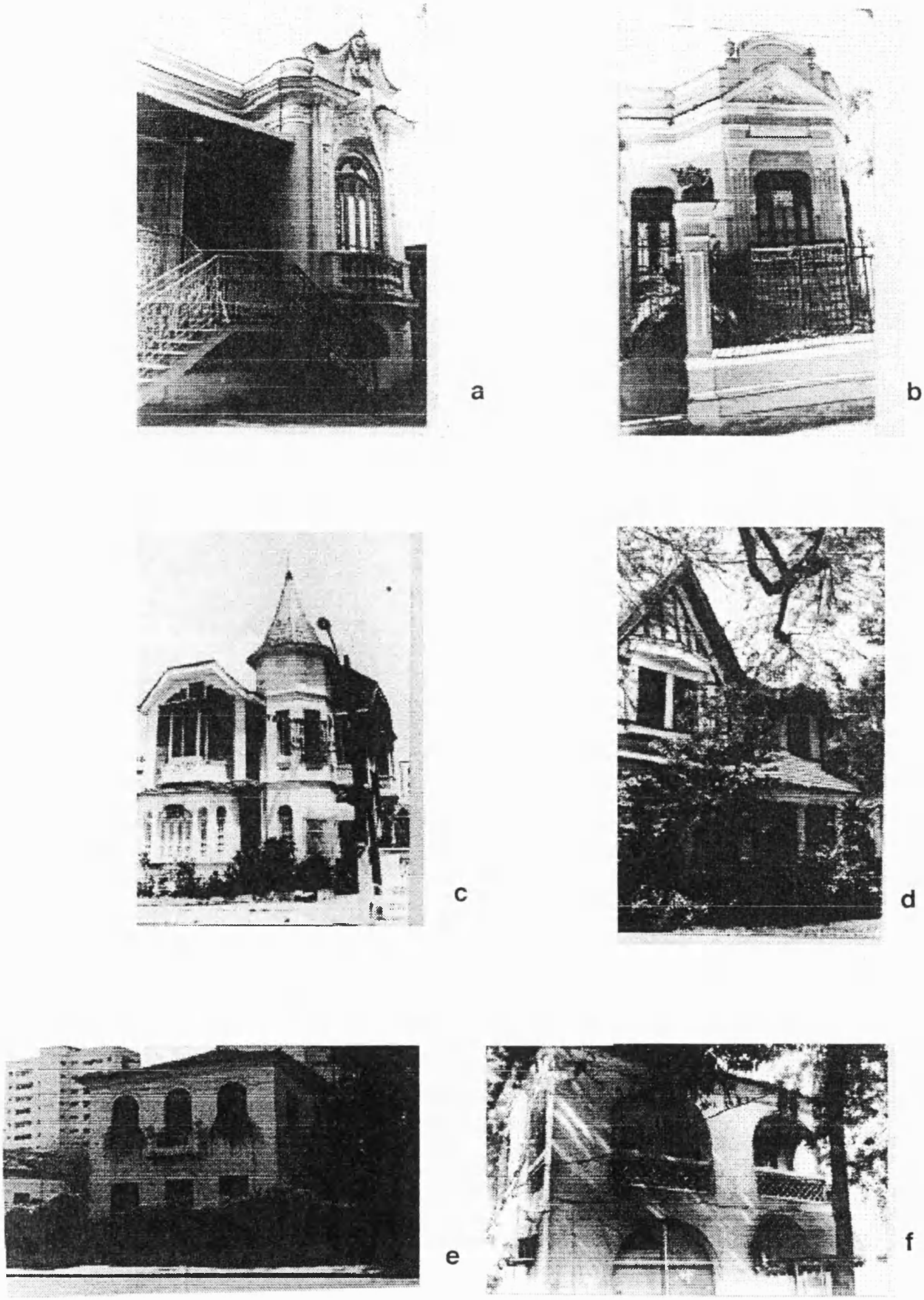


Figure 5.6. Surviving buildings of Recife presenting amalgamated colonial and post-colonial features

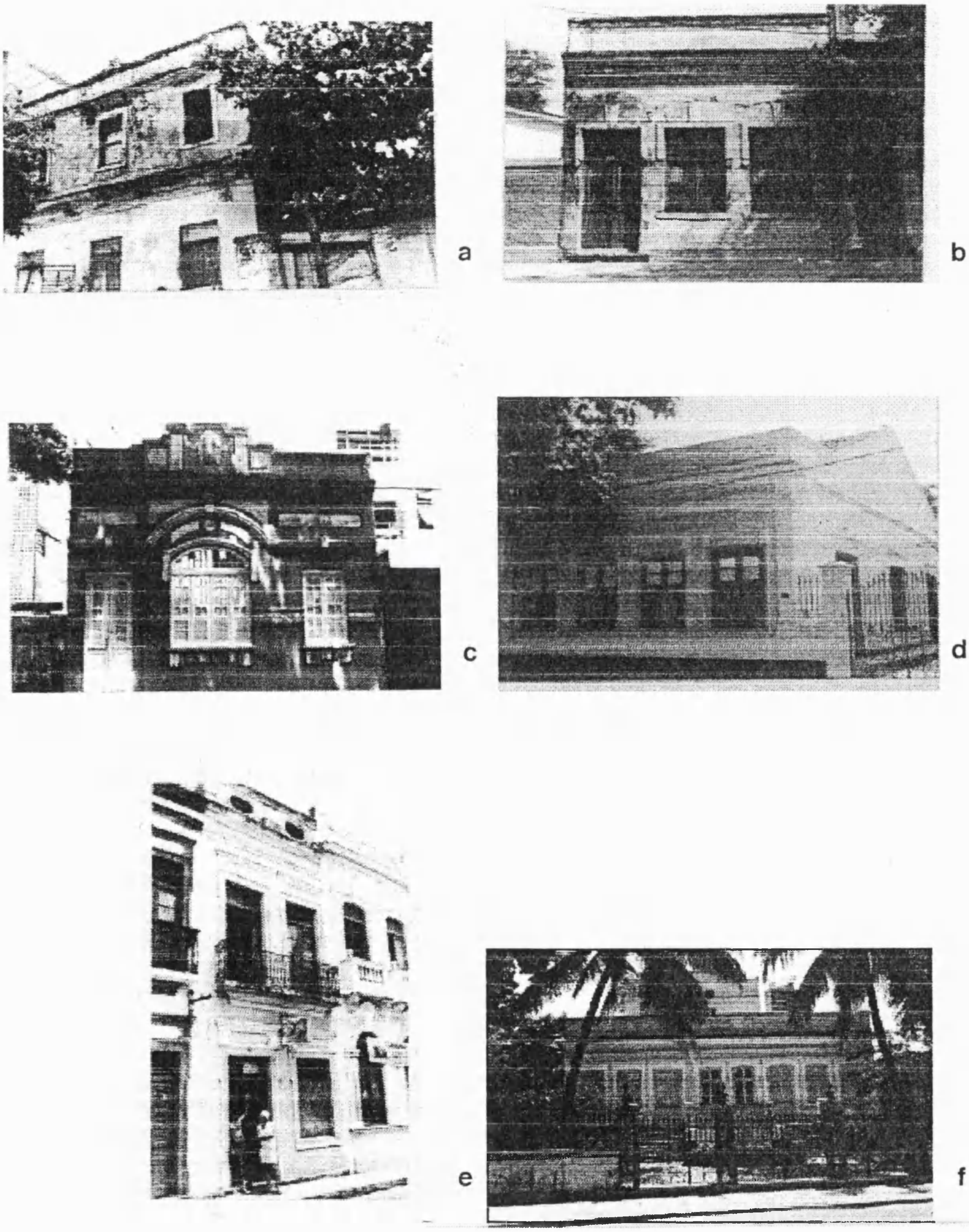
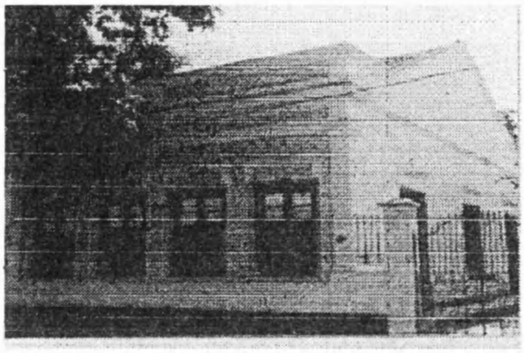


Table 5. Distribution of surviving colonial and eclectic houses in surveyed areas of Recife

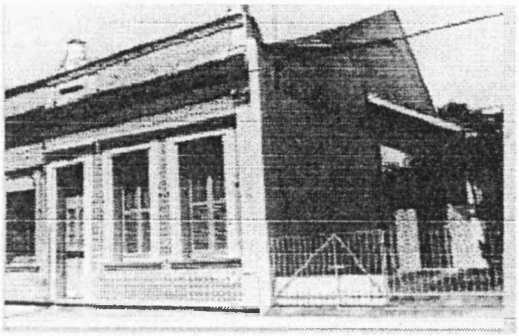
type	Boa Vista	Tejipió	Capibaribe	Beberibe	all areas
colonial	1	0	21	1	23
classicist	21	2	39	0	62
col/class.	354	56	234	47	691
turn-of-cent.	7	8	87	34	136
twent./thirties	206	75	329	59	669
non-ident.	13	1	25	0	39
all types	602	142	735	141	1620

CHAPTER 6

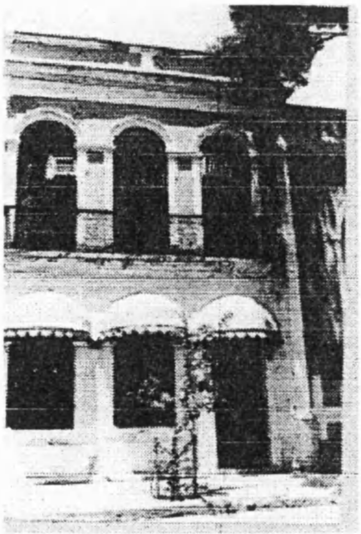
Figure 6. Colonial /classicist houses of Recife



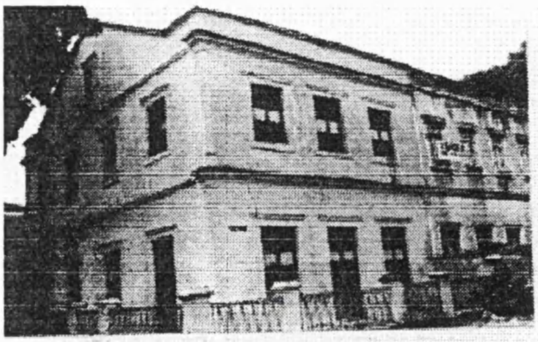
House 9



House 10

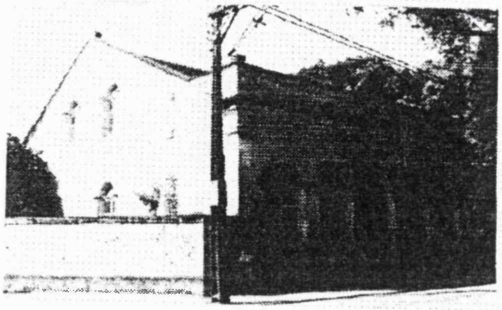


House 13



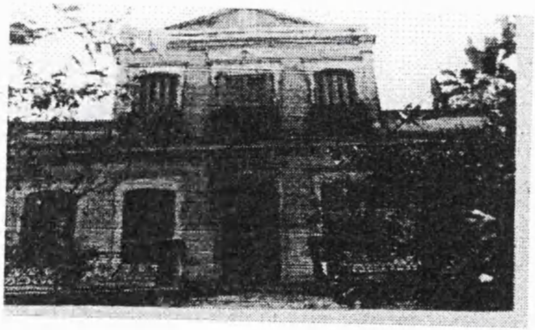
House 14

Figure 6. Colonial/classicist houses of Recife (cont.)



House 16

House 17



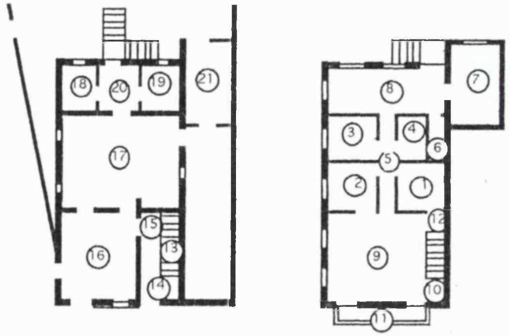
House 19

House 20

House 21

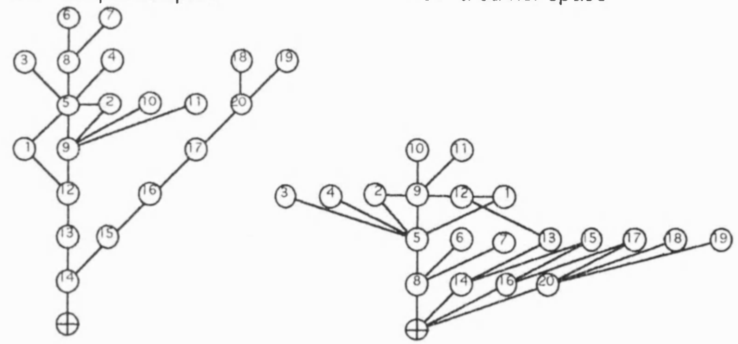
Figure 6.1. Colonial houses. Urban *sobrados*, earlier types

a) Praça de São Pedro



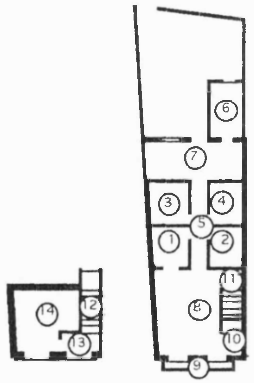
from the public space

from a carrier space



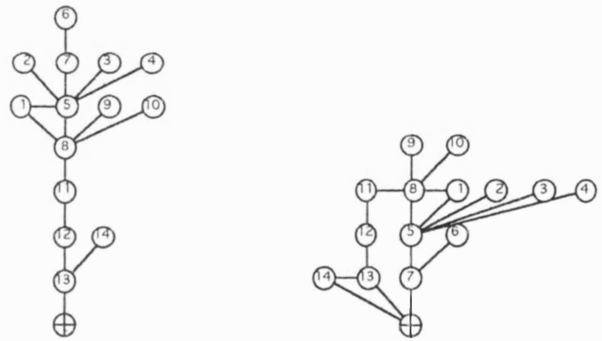
landing	s.visitas	St.	corr.	alcova	vest.	alcova	T	balcony	altar	s.jantar	alcova	alcova	store	cozinha	larder	wareh.	T	?	?*
12 =	9 >	13 >	5 =	1 >	14 >	2 >	15 =	11 =	10 >	8 >	4 =	3 >	16 >	7 =	6 >	17 >	20 >	19 =	18

b) Rua do Amparo



from the public space

from a carrier space

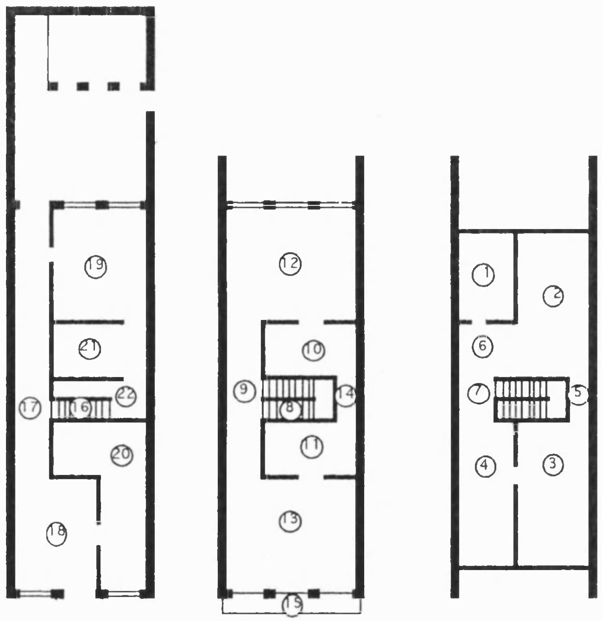


s.visitas	corr.	alcova	landing	s.jantar	balcony	altar	alcova	alcova	alcova	St.	cozinha	vest.	store*
8 >	5 >	1 =	11 >	7 >	9 =	10 >	2 =	4 =	3 >	12 >	6 >	13 >	14

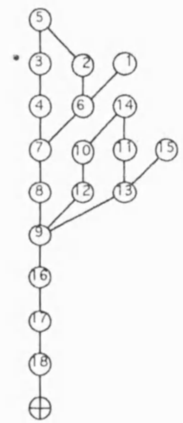
***spaces arrayed in ascending order of RRA values (minimal living complex)**

Figure 6.2. Colonial houses. Urban *sobrados*, earlier types

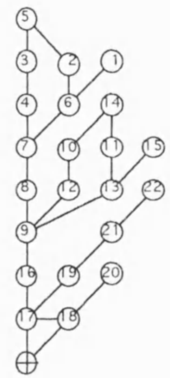
Recife: 'respectful family'



from the public space



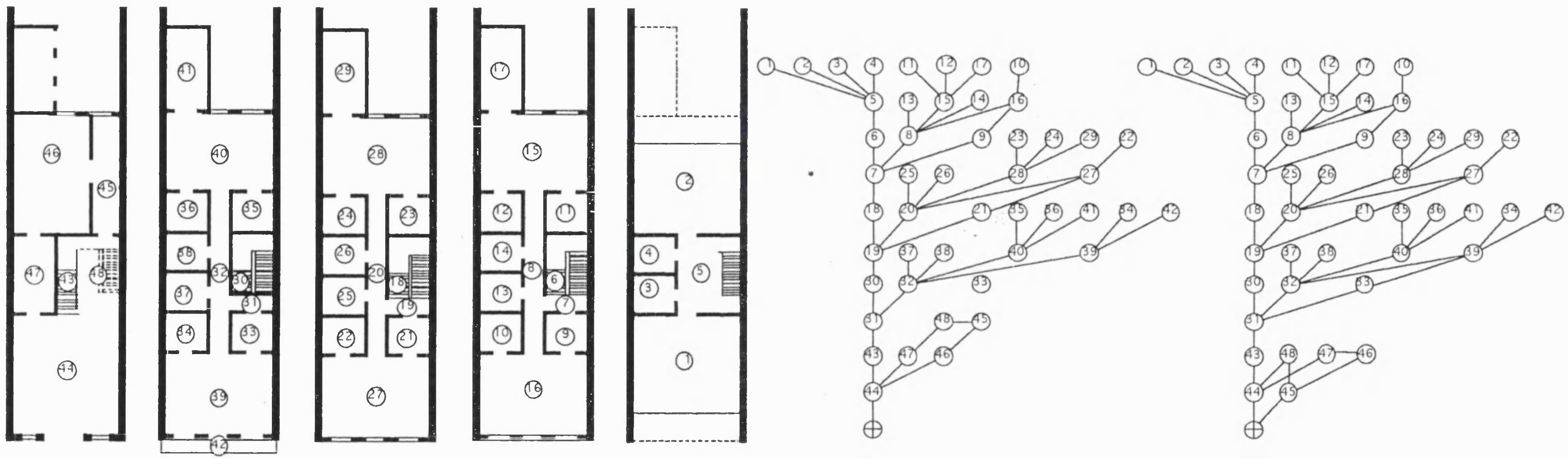
from a carrier space



spaces arrayed in ascending order of RRA values (minimal living complex)

corr.	St.	St.	landing	s.visitas	s.trás	T	T	alcova	fm.slvs.	alcova	balcony	m.gsts.	vest.	s.jantar	cozinha	T	copa	?	m.slvs.	T	?
9 >	8 >	16 >	7 =	13 >	12 >	17 >	6 >	11 =	4 >	10 >	15 =	19 >	18 >	2 >	3 =	14 >	1 >	21 >	20 >	5 >	22

Figure 6.3. Colonial houses. Urban *sobrados*, earlier types



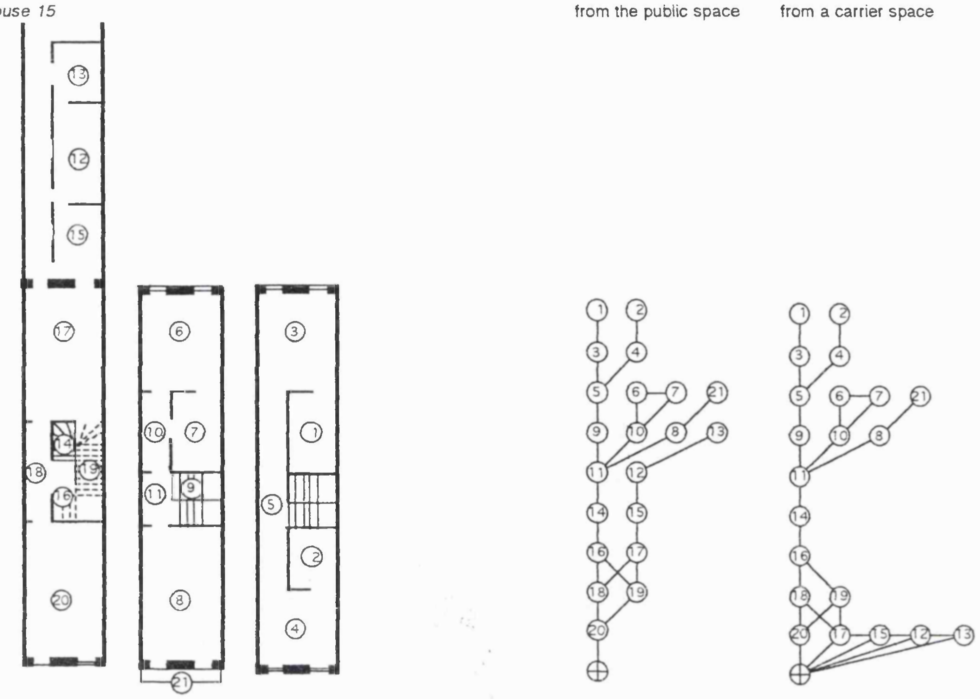
spaces arrayed in ascending order of RRA values (minimal living complex)

landing	st.	st.	landing	landing	corr.	alcova	corr.	corr.	St.	alcova	st.	alcova	bed.	s.v.(inf.)	?	?	s.jantar	s.visitas	vest.	?	s.j.(inf.)	?	ch.bed.	landing
19 >	30 >	18 >	31 >	7 >	20 >	21 >	32 >	8 >	43 >	33 =	6 >	9 >	28 >	27 >	25 =	26 >	40 =	39 >	44 =	37 =	15 =	38 >	16 >	5 >
	?	?	gabinete	?	?	alcova	alcova	balcony	copa	alcova	alcova	store	T	copa	alcova	alcova	alcova	?	fem.s.	?	cozinha	T	male slaves	
>	13 =	14 >	29 =	23 =	24 >	22 >	36 =	42 =	41 =	35 =	34 >	47 =	48 >	17 =	12 =	11 >	10 >	4 =	1 =	3 =	2 >	45 =	46	

Figure 6.4. Colonial *sobrados* of Recife

a) *House 15*

from the public space from a carrier space

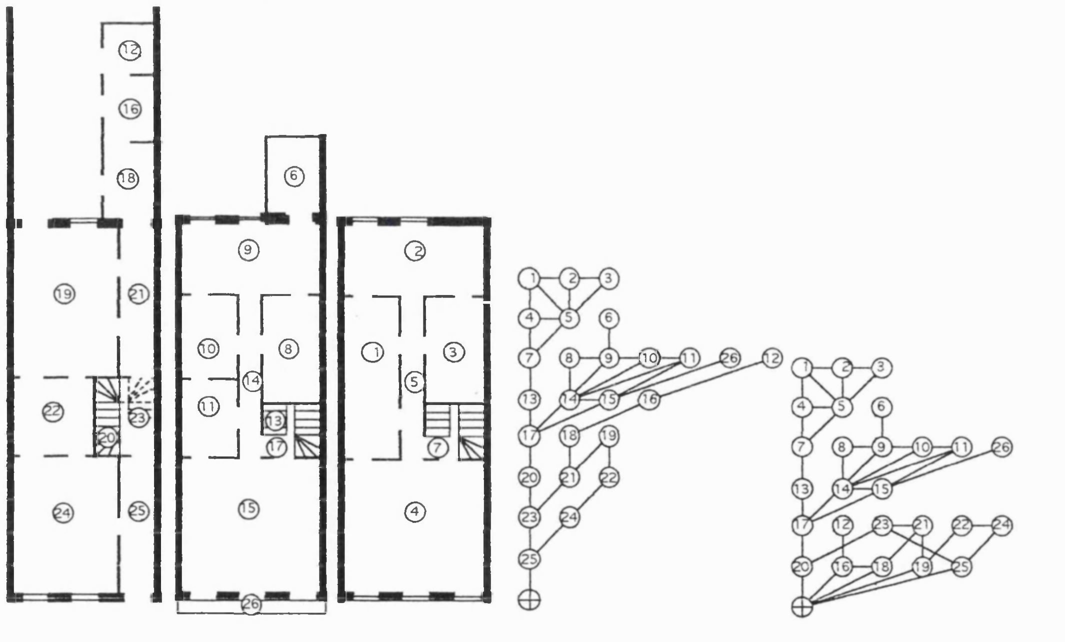


s.visitas (8) s.jantar (6) alcova (7) balcony (21) cozinha* (3)

11 > 14 > 16 > 9 > 10 > 18 = 19 = 8 > 5 > 17 > 6 = 7 > 20 > 21 > 4 = 3 > 15 > 1 = 2 > 12 > 13

b) *House 20*

from the public space from a carrier space



s.visitas (15) s.jantar (9) alcova (11) alcova (10) alcova (8) balcony (26) copa (6) cozinha* (2)

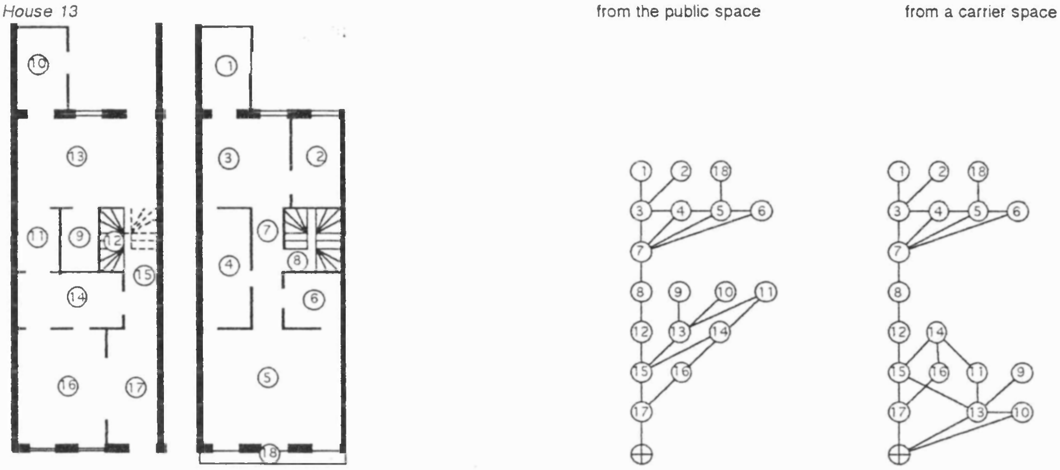
17 > 20 > 13 = 14 > 23 > 15 > 7 > 21 > 9 > 11 = 10 > 25 = 8 > 26 > 5 > 4 > 19 = 18 > 24 > 6 > 2 = 1 >
3 > 22 > 16 > 12

*spaces arrayed in ascending order of RRA values (minimal living complex)

Figure 6.5. Colonial *sobrados* of Recife

a) *House 13*

from the public space   from a carrier space

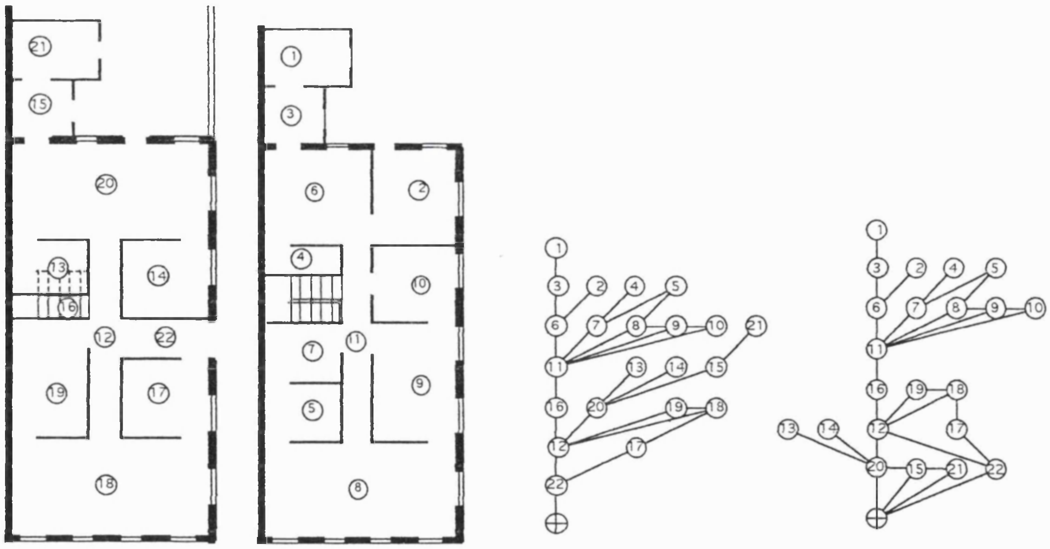


s.jantar alcova s.visitas alcova cozinha copa balcony*

8 = 12 > 7 = 15 > 13 > 3 = 4 > 14 = 5 > 17 = 6 > 11 > 16 = 9 = 10 > 1 = 2 > 18

b) *House 17*

from the public space   from a carrier space



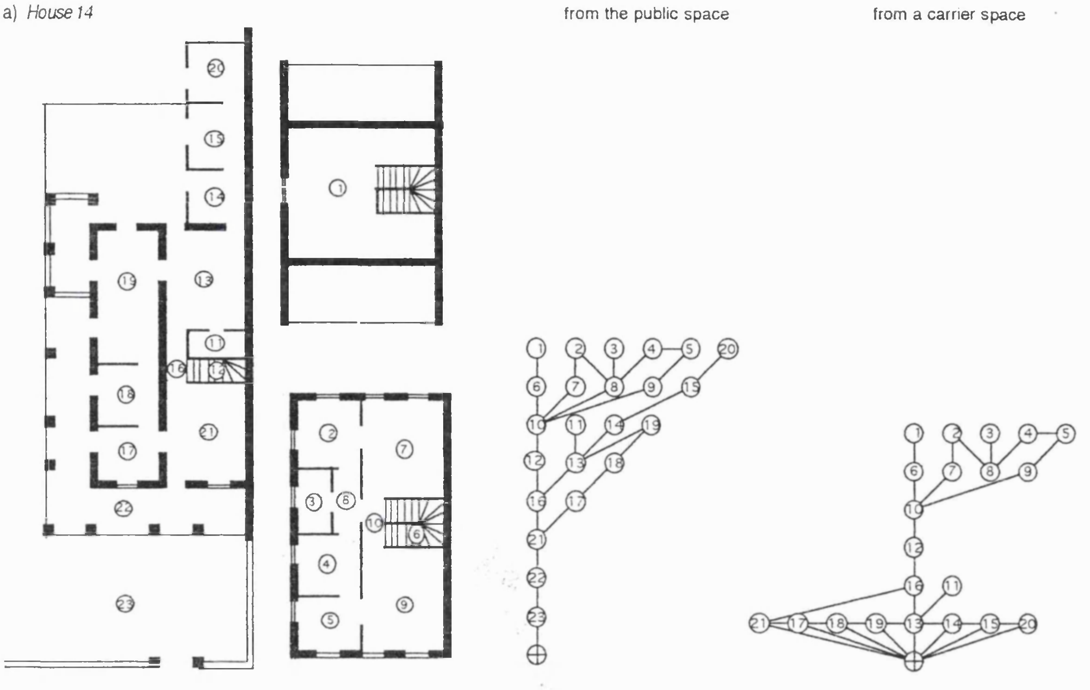
s.jantar s.visitas alcova alcova alcova cozinha alcova*

11 = 16 > 12 > 6 > 20 > 8 = 9 > 7 > 18 = 10 > 22 = 19 > 3 > 4 = 15 = 2 > 14 = 13 > 5 > 17 > 1 > 21

*spaces arrayed in ascending order of RRA values (minimal living complex)

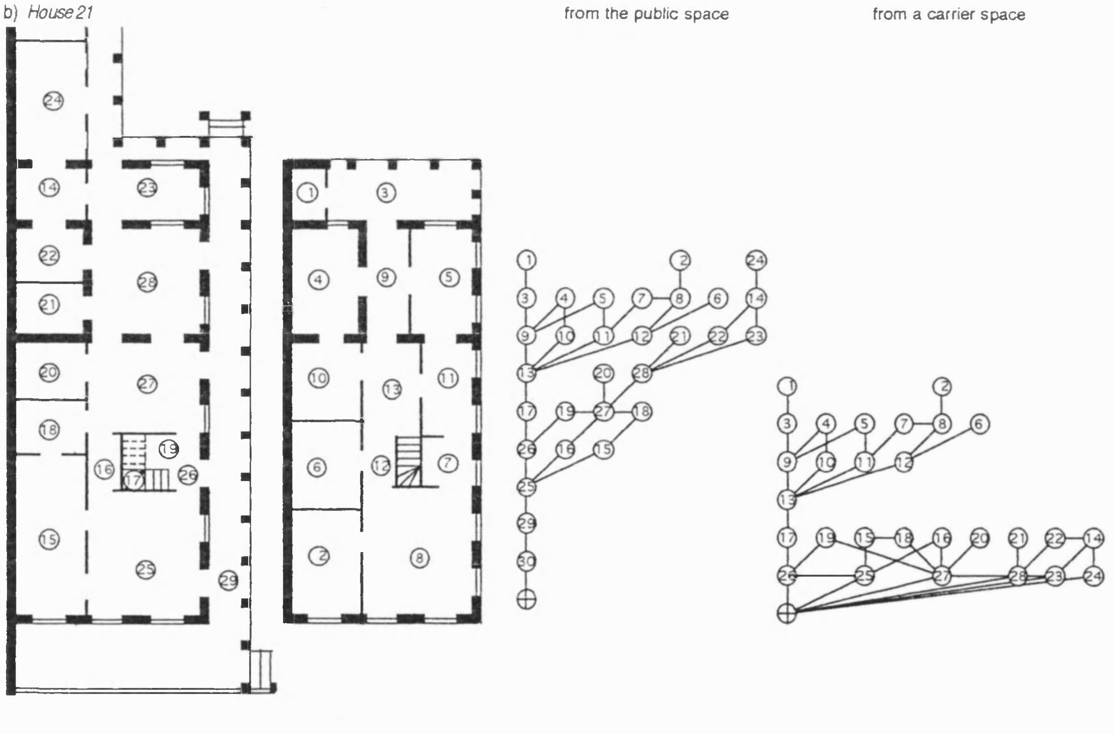
Figure 6.6. Colonial *sobrados* of Recife

a) *House 14* from the public space from a carrier space



s.jantar s.visitas alcova copa alcova alcova alcova alcova alcova cozinha*
12 > 10 = 16 > 13 > 8 > 21 > 9 > 6 = 7 > 19 = 14 > 11 > 4 > 2 > 17 = 5 > 3 > 1 > 18 > 15 > 20

b) *House 21* from the public space from a carrier space

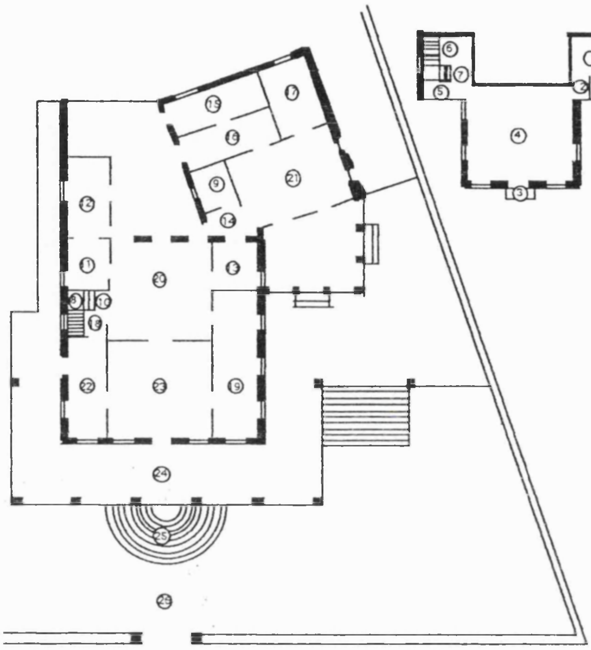


s.visitas alcova alcova s.jantar alcova alcova alcova alcova alcova alcova*
17 = 26 > 13 > 19 > 27 = 25 > 9 = 16 > 12 > 11 > 10 > 28 = 15 > 18 > 20 > 5 > 8 > 7 > 3 = 4 > 6 > 23
alcova alcova alcova copa cozinha
= 22 > 21 > 2 > 1 > 14 > 24

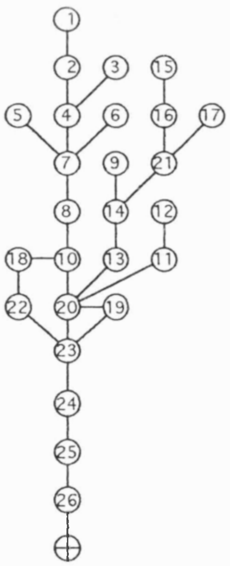
*spaces arrayed in ascending order of RRA values (minimal living complex)

Figure 6.7. Colonial *sobrados* of Recife

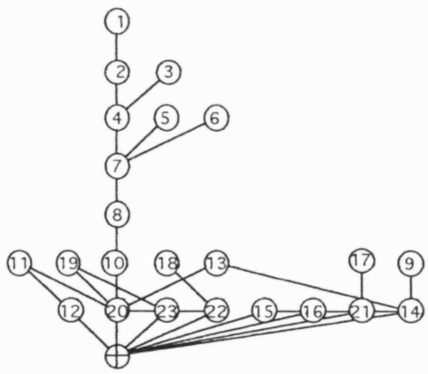
House 19



from the public space



from a carrier space

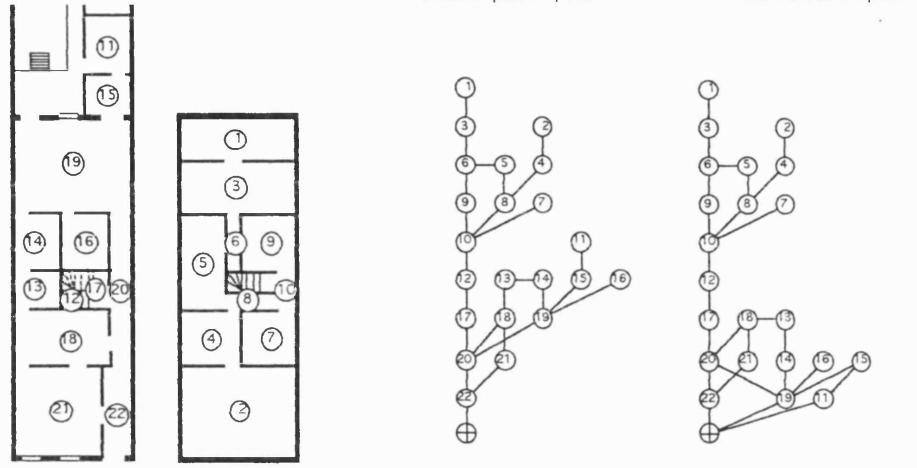


spaces arrayed in ascending order of RRA values (minimal living complex)

s.jantar				s.visitas		alcova	copa			alcova	alcova				cozinha	
20 >	10 >	8 =	13 >	23 >	7 >	19 =	11 >	14 =	18 >	22 >	4 >	21 >	5 =	6 >	12 >	9 >
	balcony															
2 >	3 =	16 >	17 >	1 >	15											

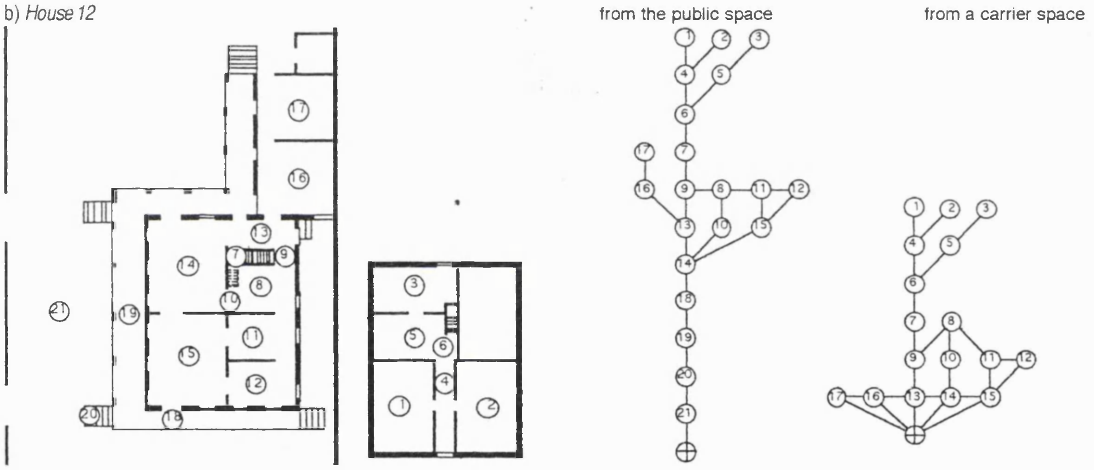
Figure 6.8. Colonial *casas térreas* (with an attic) of Recife

a) *House 18* — from the public space — from a carrier space



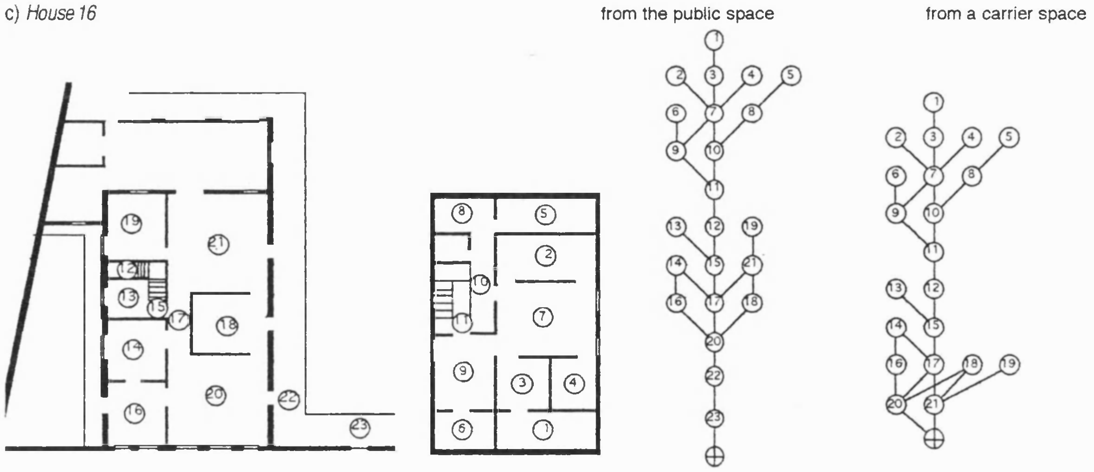
					s.jantar	alcova			alcova	alcova		alcova	copa	alcova	alcova	alcova	s.visitas			cozinha	
12 =	17 >	10 =	20 >	8 =	19 >	9 >	18 >	22 >	7 >	5 =	6 >	14 >	15 =	4 =	13 >	16 >	21 >	3 >	2 =	11 >	1

b) *House 12* — from the public space — from a carrier space



					s.jantar		alcova	copa			s.visitas	alcova	cozinha	alcova	alcova	alcova
9 >	7 >	13 >	8 >	6 >	14 >	10 >	11 >	16 >	4 >	5 =	15 >	12 >	17 >	2 =	1 >	3

c) *House 16* — from the public space — from a carrier space



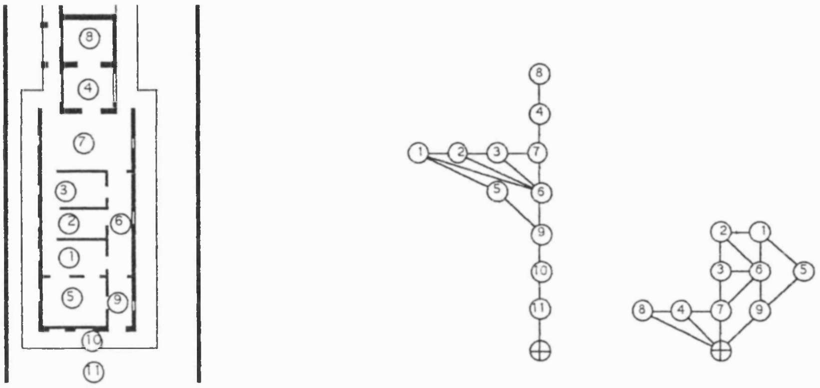
				alcova		alcova			s.visitas	s.jantar		alcova				alcova		alcova	alcova*	
11 >	12 >	15 >	10 >	9 >	17 >	7 >	8 >	13 >	20 =	21 =	6 >	14 >	3 >	2 =	4 >	18 =	5 >	16 >	19 >	1

*spaces arrayed in ascending order of RRA values (minimal living complex)

Figure 6.9. Colonial *casas térreas* of Recife

a) *House 7*

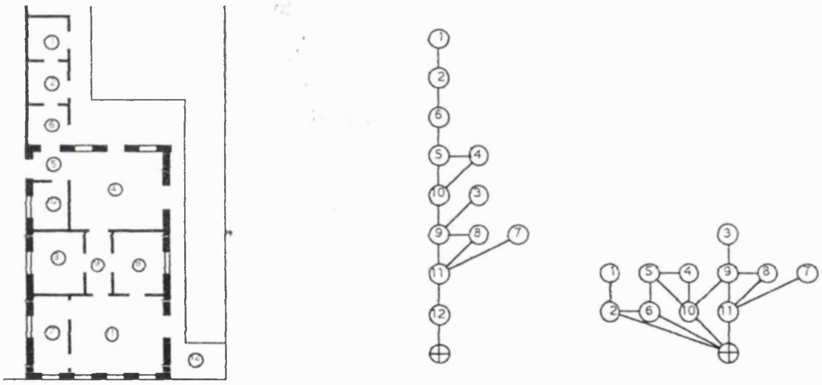
from the public space | from a carrier space



	s.jantar	alcova	alcova	alcova		copa	s.visitas	cozinha*
6 >	7 >	3 >	1 =	2 >	9 >	4 >	5 >	8

b) *House 9*

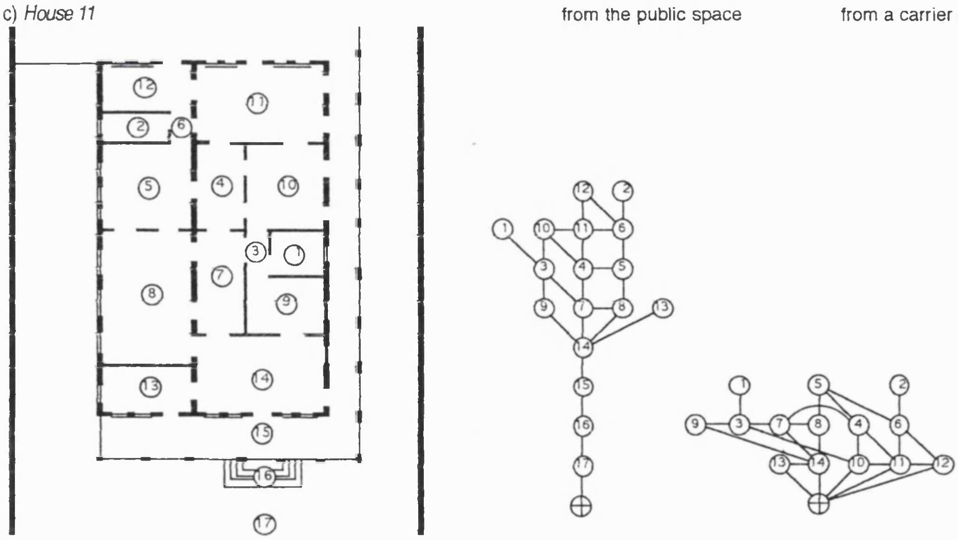
from the public space | from a carrier space



s.jantar		cozinha			alcova	alcova	s.visitas*		
5 =	7 >	4 >	8 >	3 >	6 >	9 =	10 >	1 =	2

c) *House 11*

from the public space | from a carrier space



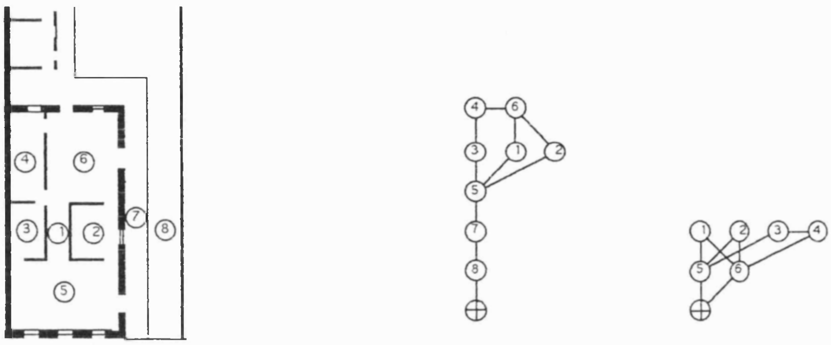
		alcova	alcova	s.jantar	alcova		s.visitas			cozinha*			
4 =	7 >	8 =	10 =	11 =	5 =	3 >	14 >	6 >	9 >	12 >	1 >	13 >	2

*spaces arrayed in ascending order of RRA values (minimal living complex)

Figure 6.10. Colonial *casas térreas* of Recife

a) *House 1*

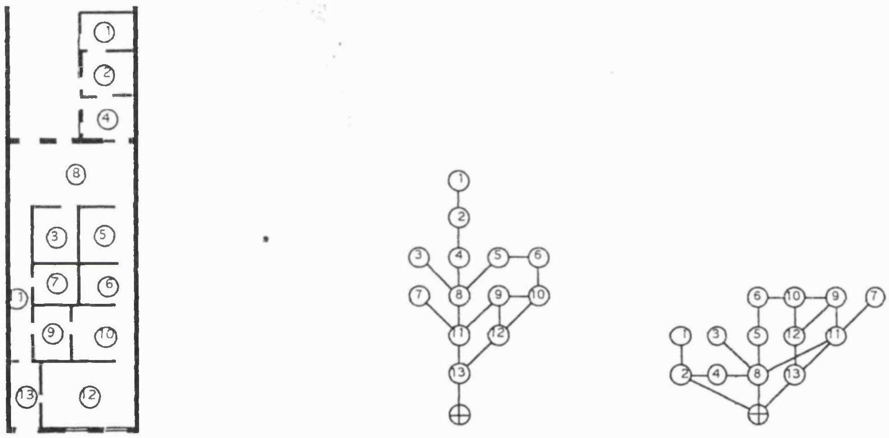
from the public space | from a carrier space



s.visitas s.jantar alcova alcova alcova*
5 = 6 > 4 = 1 = 2 = 3

a) *House 10*

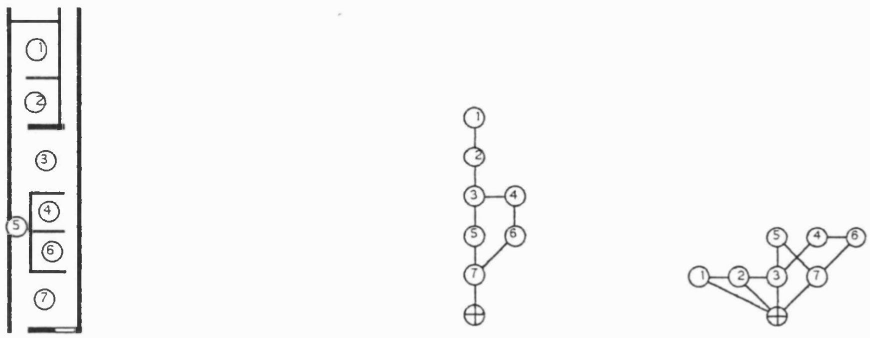
from the public space | from a carrier space



s.jantar alcova alcova copa alcova alcova s.visitas alcova cozinha*
8 > 11 > 5 = 9 > 4 > 13 > 6 > 10 = 3 > 12 = 7 > 2 > 1

b) *House 2*

from the public space | from a carrier space



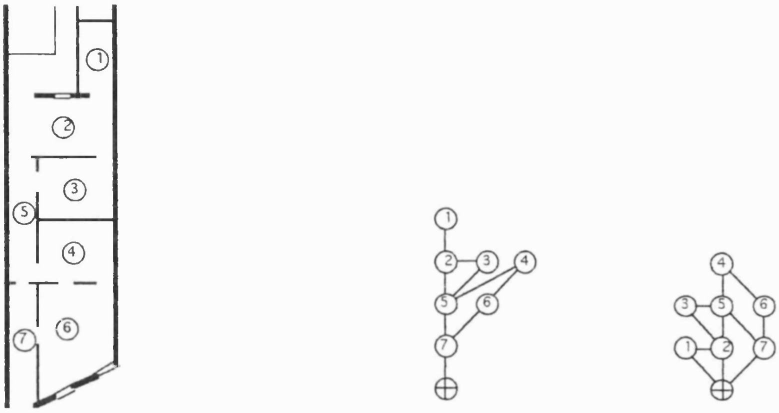
s.jantar alcova copa alcova s.visitas cozinha*
3 > 4 = 5 > 2 > 6 = 7 > 1

*spaces arrayed in ascending order of RRA values (minimal living complex)

Figure 6.11. Colonial *casas térreas* of Recife

a) *House 4*

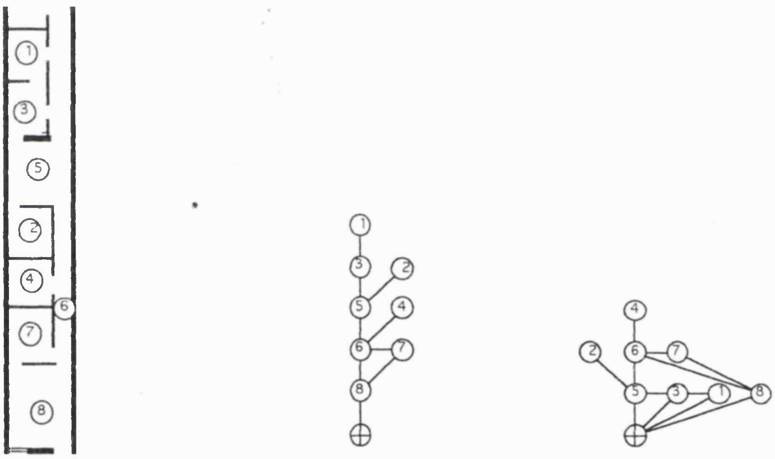
from the public space | from a carrier space



s.jantar alcova alcova s.visitas cozinha*
5 > 2 > 7 = 4 = 3 > 6 > 1

b) *House 5*

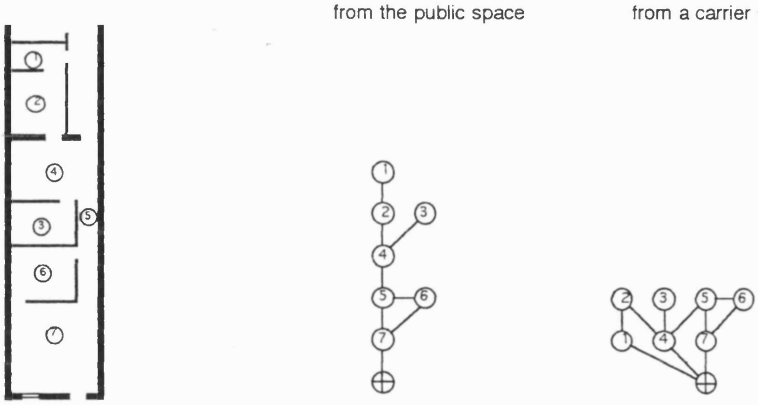
from the public space | from a carrier space



s.jantar cozinha s.visitas alcova alcova alcova*
6 = 5 > 3 > 8 = 7 > 2 = 4 > 1

c) *House 3*

from the public space | from a carrier space



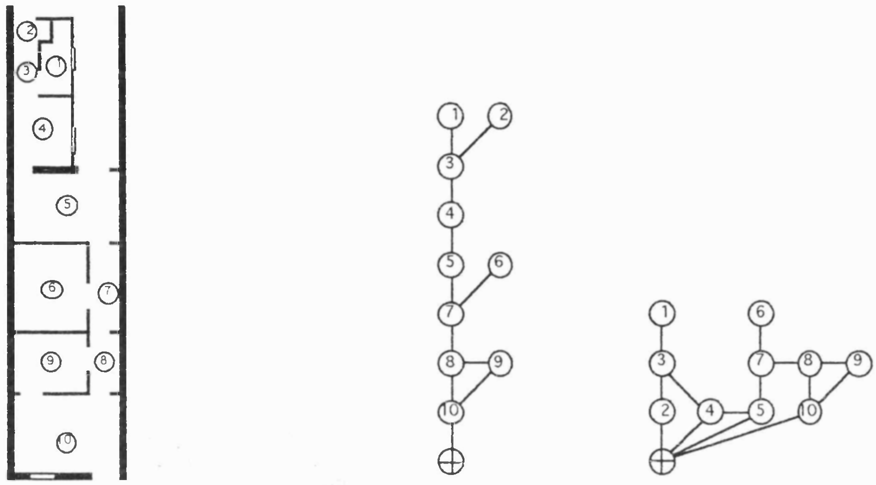
s.jantar cozinha alcova alcova s.visitas*
4 > 5 > 2 > 6 = 3 = 7 > 1

*spaces arrayed in ascending order of RRA values (minimal living complex)

Figure 6.12. Colonial *casas térreas* of Recife

a) *House 8*

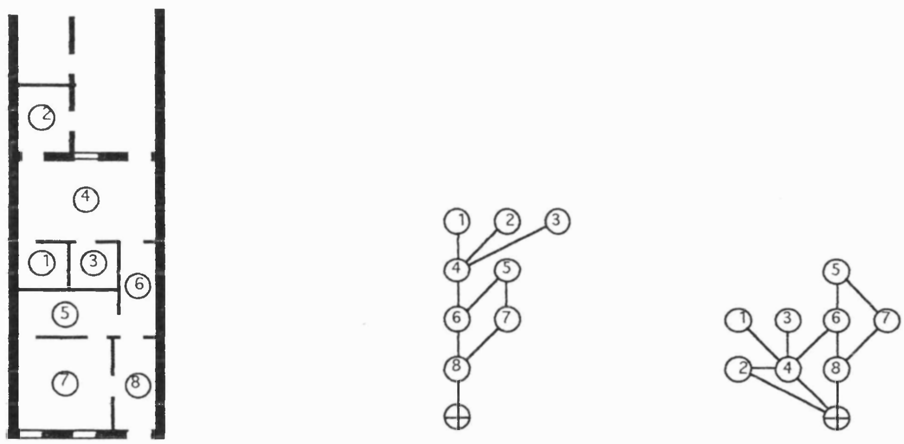
from the public space from a carrier space



s.jantar cozinha alcova alcova s.visitas*
5 = 7 > 4 > 8 > 3 > 6 > 9 = 10 > 1 = 2

b) *House 6*

from the public space from a carrier space



s.jantar alcova alcova alcova cozinha s.visitas*
4 = 6 > 5 = 8 > 3 = 1 = 2 > 7

*spaces arrayed in ascending order of RRA values (minimal living complex)

Figure 6.13. Colonial houses. Permeability graphs rooted from the public space

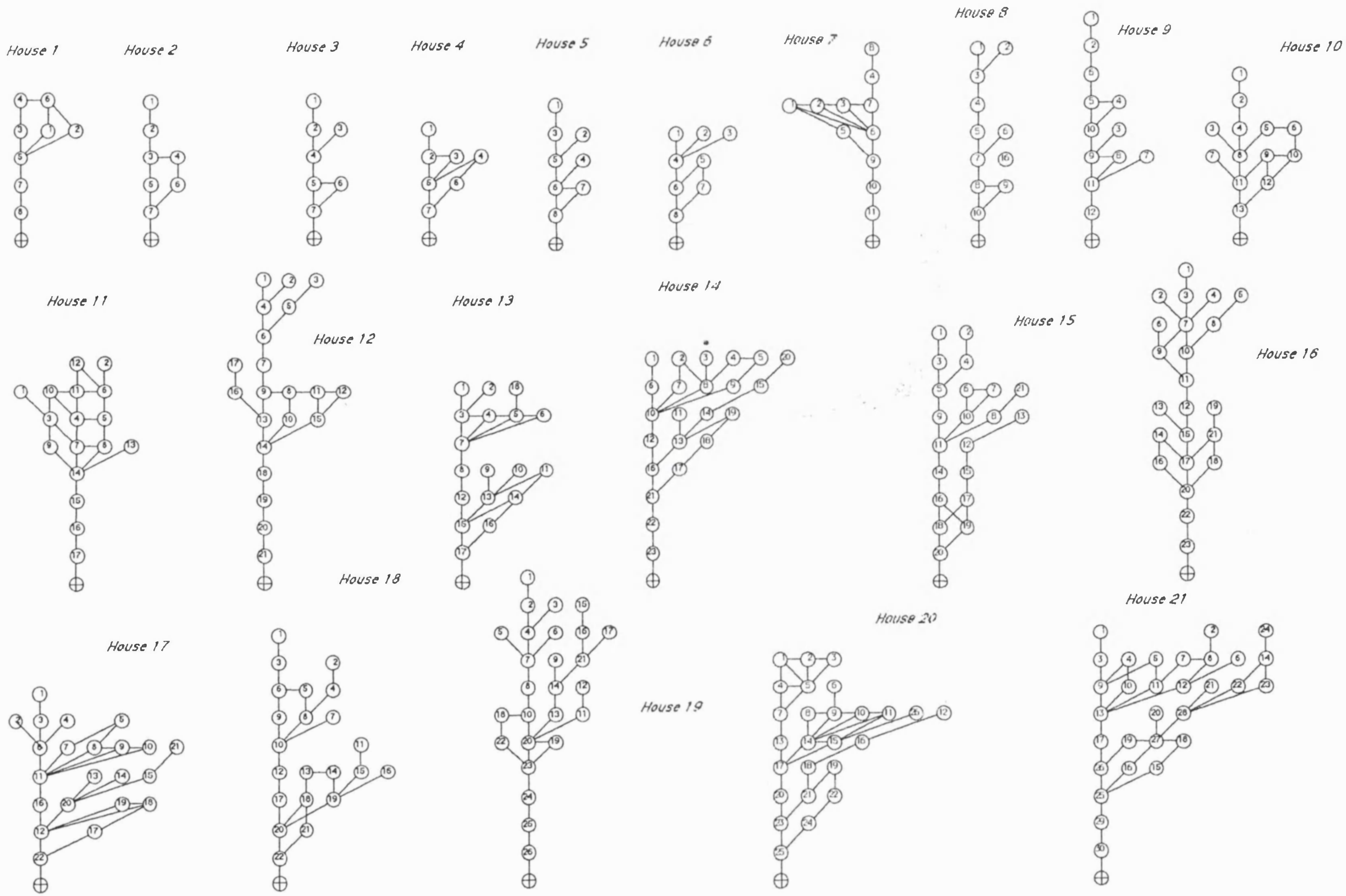


Figure 6.14. Colonial houses. Permeability graphs rooted from a carrier space

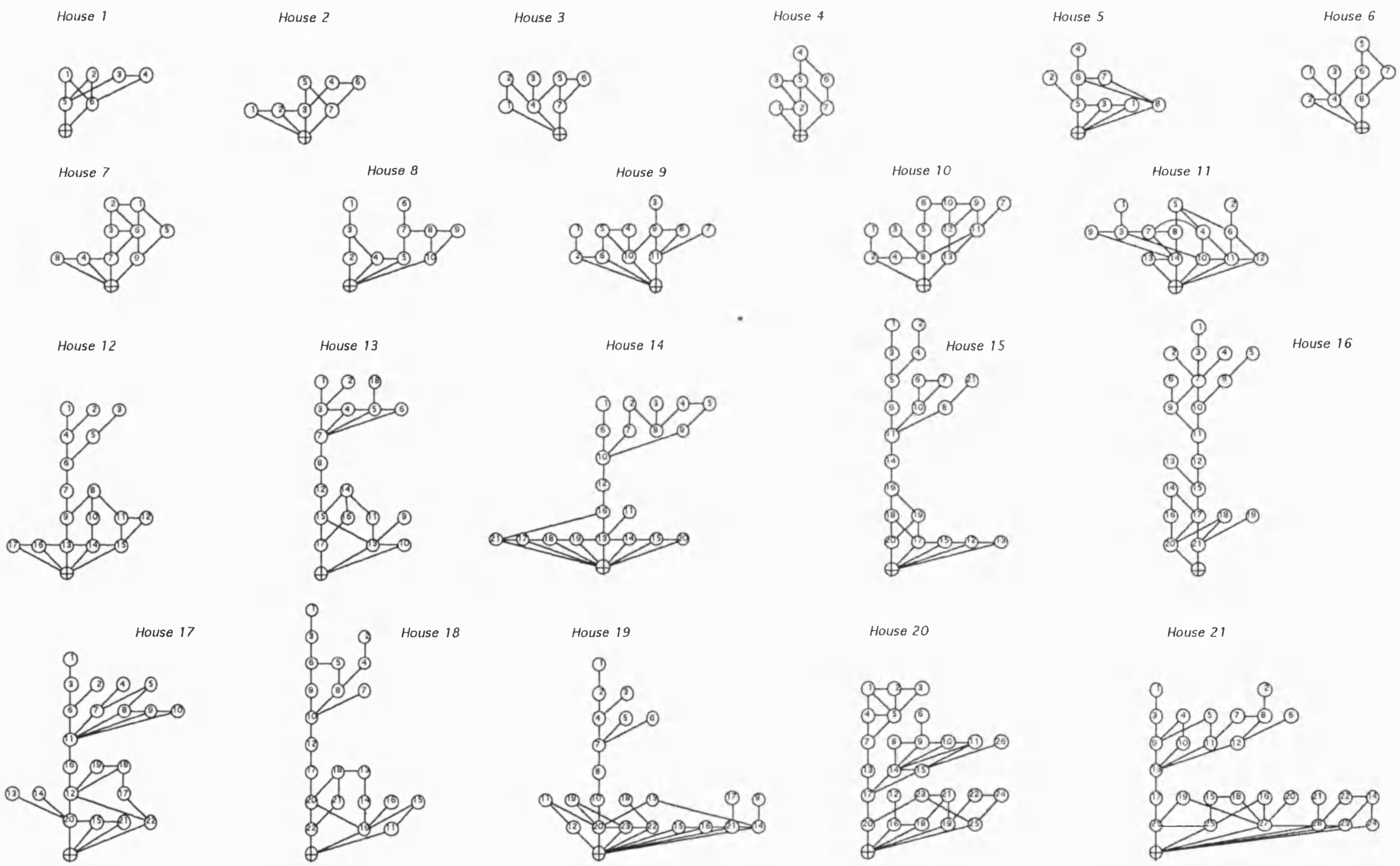


Table 6. Colonial houses of Recife. Location

No of plan	address: street	no.	area of survey	neighbourhood in the surveyed area
1	Rua Joaquim Nabuco	690	VC	Graças
2	Rua do Riachuelo	47	BV	Boa Vista
3	Rua do Benfica	1140	VC	Madalena
4	Rua Joaquim Nabuco	305	VC	Graças
5	Rua da Soledade	65	BV	Soledade
6	Rua do Benfica	1134	VC	Madalena
7	Rua Amélia	326	VC	Espinheiro
8	Rua do Cupim	47	VC	Graças
9	Rua das Creoulas	156	VC	Graças
10	Rua Barão de São Borja	69	BV	Boa Vista
11	Rua do Benfica	810	VC	Madalena
12	Rua das Pernambucanas	420	VC	Graças
13	Rua do Sossego	52	BV	Boa Vista
14	Avenida Conde da Boa Vista	1512	BV	Boa Vista
15	Rua da Soledade	27	BV	Soledade
16	Rua Joaquim Nabuco	636	VC	Graças
17	Rua da Soledade	111	BV	Soledade
18	Rua do Paissandu	309	BV	Paissandu
19	Estrada de Dois Irmãos	320	VC	Apipucos
20	Rua da Soledade	25	BV	Soledade
21	Rua das Pernambucanas	354	VC	Graças

Key to abreviations

BV - Boa Vista
VC - Valley of the Capibaribe

Table 6.1. Earlier colonial *sobrados.* Basic general and syntactic data on minimal living and reworked complexes

house	number of spaces: all	funct.	trans.	F/T	storeys	RRA values minimal living: av.	min.	max.	BDF	plus carrier: av.	min.	max.	BDF	plus the street: av.	min.	max.	BDF
1	20	13	5	2.6	2	1.759	1.117	2.988	.808	1.009	.575	1.39	.855	1.71	1.079	2.877	.81
2	14	8	3	2.7	2	1.208	.577	2.306	.657	.929	.467	1.274	.819	1.274	.637	2.082	.749
3	22	11	9	1.2	3	1.576	.844	2.244	.826	1.537	.827	2.337	.803	1.573	.848	2.357	.809
4	48	33	14	2.4	5	1.515	.852	2.083	.852	1.512	.854	2.029	.861	1.512	.854	2.036	.86
	26	16.2	7.7	2.2	3	1.541	.847	2.405	.786	1.247	.681	1.757	.834	1.517	.855	2.338	.807

Table 6.2. Earlier colonial *sobrados.* Basic syntactic data on main functions in the minimal living and reworked complexes

house	RRA values of key functions minimal living: Rec.	Eat.	Cook.	BDF	order	plus carrier: carrier	Rec.	Eat.	Cook.	BDF	order	plus the street: st.	Rec.	Eat.	Cook.	BDF	order
1	1.117	1.611	2.078	.925	R>E>C	.623	.815	.575	1.031	.933	E>Ø>R>C	1.726	1.103	1.606	2.062	.924	R>E>S>C
2	.577	1.105	1.682	.793	R>E>C	.85	.595	.637	1.02	.923	R>E>Ø>C	2.082	.637	1.19	1.742	.816	R>E>C>S
3	1.156	1.822	1.867	.947	R>E>C	1.551	1.137	1.82	1.861	.944	R>Ø>E>C	1.965	1.158	1.84	1.882	.943	R>E>C>S
4	1.461	1.461	1.84	.985	E=R>C	1.747	1.445	1.445	1.845	.983	E=R>Ø>C	1.766	1.445	1.445	1.845	.983	E=R>S>C
	1.078	1.5	1.867	.888		1.193	.998	1.119	1.439	.946		1.885	1.086	1.52	1.883	.916	

Table 6.3. Earlier colonial sobrados. RRA values of all interior spaces (minimal living complex)

Olinda: Praça de São Pedro

landing	s.visitas	St.	corr.	alcova	vest.	alcova	T	balcony	altar	s.jantar	alcova	alcova	store	cozinha	larder	wareh.	T	?	?
12 =	9 >	13 >	5 =	1 >	14 >	2 >	15 =	11 =	10 >	8 >	4 =	3 >	16 >	7 =	6 >	17 >	20 >	19 =	18
1.117		1.221	1.247		1.377	1.403	1.585			1.611	1.715		1.845	2.078		2.156	2.52	2.988	

Olinda: Rua do Amparo

s.visitas	corr.	alcova	landing	s.jantar	balcony	altar	alcova	alcova	alcova	St.	cozinha	vest.	store
8 >	5 >	1 =	11 >	7 >	9 =	10 >	2 =	4 =	3 >	12 >	6 >	13 >	14
.577	.625	.865		1.105	1.153		1.201			1.249	1.682	1.73	2.306

Recife: 'respectable family'

corr.	St.	St.	landing	s.visitas	s.trás	T	T	alcova	fm.slvs.	alcova	balcony	m.gsts.	vest.	s.jantar	cozinha	T	copa	?	m.slvs.	T	?
9 >	8 >	16 >	7 =	13 >	12 >	17 >	6 >	11 =	4 >	10 >	15 =	19 >	18 >	2 >	3 =	14 >	1 >	21 >	20 >	5 >	22
.844	.978	1.022	1.156		1.2	1.244	1.467	1.511		1.556	1.6		1.644	1.822	1.867		1.911	2	2.089	2.178	2.444

Recife: 'wealthy man'

landing	st.	st.	landing	landing	corr.	alcova	corr.	corr.	St.	alcova	st.	alcova	bed.	s.v.(inf.)	?	?	s.jantar	s.visitas	vest.	?	s.j.(inf.)	?	ch.bed.	landing
19 >	30 >	18 >	31 >	7 >	20 >	21 >	32 >	8 >	43 >	33 =	6 >	9 >	28 >	27 >	25 =	26 >	40 =	39 >	44 =	37 =	15 =	38 >	16 >	5 >
.852	.92	.934	1.001	1.028	1.055	1.136	1.191	1.231	1.245	1.272		1.312	1.326	1.339	1.366		1.461		1.502				1.515	1.529

	?	?	gabinete	?	?	alcova	alcova	balcony	copa	alcova	alcova	store	T	copa	alcova	alcova	alcova	?	fem.s.	?	cozinha	T	male slaves
>	13 =	14 >	29 =	23 =	24 >	22 >	36 =	42 =	41 =	35 =	34 >	47 =	48 >	17 =	12 =	11 >	10 >	4 =	1 =	3 =	2 >	45 =	46
	1.542		1.637			1.651	1.772					1.793		1.813			1.826	1.84				2.083	

Table 6.4a. Colonial houses of Recife. Basic general and syntactic data on minimal living and reworked complexes

house	number of spaces: all	funct.	trans.	F/T	storeys	RRA values minimal living: av.	min.	max.	BDF	plus carrier: av.	min.	max.	BDF	plus the street: av.	min.	max.	BDF	plus kitchen linked to carrier: av.	min.	max.	BDF
1	6	5	1	5	1	.764	.573	.86	.966	.673	.392	.785	.906	1.202	.564	2.255	.66	.798	.435	1.45	.728
2	7	6	1	6	1	1.234	.589	2.159	.702	.761	.435	1.16	.82	1.269	.725	2.175	.771	•	•	•	•
3	7	6	1	6	1	1.346	.589	2.159	.713	.906	.435	1.305	.787	1.378	.725	2.175	.693	•	•	•	•
4	7	5	2	2.5	1	1.065	.392	1.766	.638	.798	.435	1.16	.824	1.088	.435	1.74	.683	•	•	•	•
5	8	7	1	7	1	1.233	.58	2.03	.725	.877	.451	1.353	.783	1.253	.564	2.029	.718	•	•	•	•
6	8	6	2	3	1	1.196	.58	1.74	.787	.927	.451	1.353	.787	1.202	.564	1.691	.789	•	•	•	•
7	9	7	2	3.5	1	1.052	.451	2.029	.614	.836	.454	1.273	.805	1.287	.638	2.297	.705	•	•	•	•
8	10	6	4	1.5	1	1.636	1	2.273	.872	1.041	.603	1.507	.843	1.658	1.055	2.336	.879	•	•	•	•
9	11	8	3	2.7	1	1.466	.829	2.562	.759	.904	.574	1.532	.809	1.472	.825	2.584	.754	•	•	•	•
10	13	9	4	2.2	1	1.142	.605	2.09	.715	.934	.529	1.634	.759	1.139	.625	2.066	.731	•	•	•	•
11	14	11	2	5.5	1	.913	.624	1.441	.858	.742	.51	1.317	.812	1.069	.649	2.016	.744	•	•	•	•
12	17	10	7	1.4	2	1.435	.82	2.05	.844	1.309	.775	2.014	.827	1.538	.935	2.494	.814	•	•	•	•
13	18	11	6	1.8	2	1.412	.899	1.829	.903	1.373	.877	1.839	.895	1.406	.877	1.839	.895	•	•	•	•
14	21	16	4	4	2	1.377	.815	2.23	.807	1.232	.778	1.667	.889	1.412	.792	2.183	.809	•	•	•	•
15	21	12	7	1.7	3	1.687	.959	2.853	.755	1.608	.955	2.289	.856	1.683	.978	2.755	.797	•	•	•	•
16	21	16	5	3.2	2	1.53	.959	2.11	.881	1.519	.977	2.133	.883	1.597	1.024	2.492	.845	1.537	.993	2.171	.882
17	22	17	4	4.2	2	1.22	.689	1.844	.82	1.181	.682	1.799	.824	1.216	.682	1.799	.826	•	•	•	•
18	22	15	6	1.8	2	1.562	1	2.422	.847	1.514	.972	2.42	.836	1.545	.972	2.42	.838	•	•	•	•
19	23	15	5	3	2	1.564	.889	2.44	.81	1.235	.695	2.221	.743	1.591	.849	2.469	.792	•	•	•	•
20	26	16	9	1.8	3	1.497	.817	2.416	.783	1.422	.802	1.924	.858	1.486	.818	2.357	.793	•	•	•	•
21	28	21	7	3	2	1.475	.939	2.424	.822	1.214	.732	1.807	.845	1.462	.88	2.343	.816	•	•	•	•
	15.2	10.7	3.9	3.4	1.6	1.324	.743	2.082	.791	1.095	.644	1.642	.828	1.379	.77	2.215	.779	1.168	.714	1.811	.805

Table 6.4b. Colonial houses of Recife. Basic general and syntactic data on minimal living and reworked complexes in different building types

building type	house	number of spaces: all	funct.	trans.	F/T	storeys	RRA values minimal living: av.	min.	max.	BDF	plus carrier: av.	min.	max.	BDF	plus the street: av.	min.	max.	BDF	plus kitchen linked to carrier: av.	min.	max.	BDF
urban sobrados	13	18	11	6	1.8	2	1.412	.899	1.829	.903	1.373	.877	1.839	.895	1.406	.877	1.839	.895	•	•	•	•
	15	21	12	7	1.7	3	1.687	.959	2.853	.755	1.608	.955	2.289	.856	1.683	.978	2.755	.797	•	•	•	•
	17	22	17	4	4.2	2	1.22	.689	1.844	.82	1.181	.682	1.799	.824	1.216	.682	1.799	.826	•	•	•	•
	20	26	16	9	1.8	3	1.497	.817	2.416	.783	1.422	.802	1.924	.858	1.486	.818	2.357	.793	•	•	•	•
		21.7	14	6.5	2.4	2.5	1.454			.815	1.396			.858	1.448			.828				
semi-rural sobrados	14	21	16	4	4	2	1.377	.815	2.23	.807	1.232	.778	1.667	.889	1.412	.792	2.183	.809	•	•	•	•
	19	23	15	5	3	2	1.564	.889	2.44	.81	1.235	.695	2.221	.743	1.591	.849	2.469	.792	•	•	•	•
	21	28	21	7	3	2	1.475	.939	2.424	.822	1.214	.732	1.807	.845	1.462	.88	2.343	.816	•	•	•	•
		24	17.3	5.3	3.3	2	1.472			.813	1.227			.826	1.488			.806				
urban casas térreas	2	7	6	1	6	1	1.234	.589	2.159	.702	.761	.435	1.16	.82	1.269	.725	2.175	.771	•	•	•	•
	3	7	6	1	6	1	1.346	.589	2.159	.713	.906	.435	1.305	.787	1.378	.725	2.175	.693	•	•	•	•
	4	7	5	2	2.5	1	1.065	.392	1.766	.638	.798	.435	1.16	.824	1.088	.435	1.74	.683	•	•	•	•
	5	8	7	1	7	1	1.233	.58	2.03	.725	.877	.451	1.353	.783	1.253	.564	2.029	.718	•	•	•	•
	6	8	6	2	3	1	1.196	.58	1.74	.787	.927	.451	1.353	.787	1.202	.564	1.691	.789	•	•	•	•
	8	10	6	4	1.5	1	1.636	1	2.273	.872	1.041	.603	1.507	.843	1.658	1.055	2.336	.879	•	•	•	•
	10	13	9	4	2.2	1	1.142	.605	2.09	.715	.934	.529	1.634	.759	1.139	.625	2.066	.731	•	•	•	•
(+ attic)	18	22	15	6	2.5	2	1.562	1	2.422	.847	1.514	.972	2.42	.836	1.545	.972	2.42	.838	•	•	•	•
		10.2	7.5	2.6	3.8	1.1	1.302			.75	.97			.805	1.316			.763				
semi-rural casas térreas	1	6	5	1	5	1	.764	.573	.86	.966	.673	.392	.785	.906	1.202	.564	2.255	.66	.798	.435	1.45	.728
	7	9	7	2	3.5	1	1.052	.451	2.029	.614	.836	.454	1.273	.805	1.287	.638	2.297	.705	•	•	•	•
	9	11	8	3	2.7	1	1.466	.829	2.562	.759	.904	.574	1.532	.809	1.472	.825	2.584	.754	•	•	•	•
	11	14	11	2	5.5	1	.913	.624	1.441	.858	.742	.51	1.317	.812	1.069	.649	2.016	.744	•	•	•	•
(+ attic)	12	17	10	7	1.4	2	1.435	.82	2.05	.844	1.309	.775	2.014	.827	1.538	.935	2.494	.814	•	•	•	•
	16	21	16	5	3.2	2	1.53	.959	2.11	.881	1.519	.977	2.133	.883	1.597	1.024	2.492	.845	1.537	.993	2.171	.882
		13	9.5	3.3	3.5	1.3	1.193			.82	.997			.84	1.361			.754	1.168			.805
		15.2	10.7	3.9	3.4	1.6	1.324			.791	1.095			.828	1.379			.779	1.168			.805

Table 6.5a. Colonial sample. Basic syntactic data on main functions for all complexes.

	RRA values of key functions minimal living					plus carrier						plus the street					plus kitchen linked to carrier				
house	Rec.	Eat.	Cook.	BDF	order	carr.	Rec.	Eat.	Cook.	BDF	order	st.	Rec.	Eat.	Cook.	order	carr.	Rec.	Eat.	Cook.	BDF
1	.573	.573	•	•	E=R	.785	.393	.393	•	•	E=R>Ø	2.255	.564	1.24	•	R>E>S	.58	.435	.435	1.45	.563
2	1.374	.589	2.159	.715	E>R>C	.435	.58	.435	1.16	.78	E=Ø>R>C	1.885	1.015	.725	2.175	E>R>S>C	•	•	•	•	•
3	1.57	.589	1.178	.827	E>C>R	.58	.87	.435	1.015	.864	E>Ø>R>C	2.03	1.16	.725	1.305	E>R>C>S	•	•	•	•	•
4	1.57	.785	1.766	.872	E>R>C	.725	1.16	.58	1.015	.905	E>Ø>C>R	1.595	1.305	.87	1.74	E>R>S>C	•	•	•	•	•
5	1.305	.58	1.16	.872	E>C>R	.564	.676	.451	.789	.938	E>Ø>R>C	1.804	1.015	.676	1.24	E>R>C>S	•	•	•	•	•
6	1.74	.58	1.45	.787	E>C>R	.676	1.353	.451	.902	.785	E>Ø>C>R	1.691	1.466	.676	1.466	E>R=C>S	•	•	•	•	•
7	1.466	.676	2.029	.789	E>R>C	.727	1.091	.545	1.273	.863	E>Ø>R>C	2.297	1.213	.957	2.106	E>R>C>S	•	•	•	•	•
8	2	1	1.182	.885	E>C>R	.603	.829	.678	.754	.992	Ø>E>C>R	2.336	1.658	1.055	1.281	E>C>R>S	•	•	•	•	•
9	1.356	.829	1.884	.872	E>R>C	.447	.574	.574	.894	.942	Ø>E=R>C	2.145	1.045	.88	1.98	E>R>C>S	•	•	•	•	•
10	1.265	.605	1.485	.849	E>R>C	.625	.913	.529	1.057	.906	E>Ø>R>C	1.49	1.153	.625	1.49	E>R>C=S	•	•	•	•	
11	.817	.721	1.105	.959	E>R>C	.51	.552	.51	.722	.971	E=Ø>R>C	2.016	.683	.922	1.298	R>E>C>S	•	•	•	•	•
12	1.537	1.196	1.947	.952	E>R>C	1.054	1.302	1.054	1.519	.973	E=Ø>R>C	2.494	1.247	1.065	1.871	E>R>C>S	•	•	•	•	•
13	1.333	1.302	1.798	.972	E>R>C	1.5	1.358	1.33	1.811	.974	E>R>Ø>C	1.754	1.358	1.33	1.811	E>R>S>C	•	•	•	•	•
14	1.199	1.007	1.774	.928	E>R>C	1.067	.955	.889	1.467	.935	E>Ø>R>C	2.183	1.024	.985	1.719	E>R>C>S	•	•	•	•	•
15	1.367	1.75	1.846	.98	R>E>C	1.778	1.356	1.733	1.844	.98	R>E>Ø>C	2.089	1.378	1.756	1.866	R>E>C>S	•	•	•	•	•
16	1.582	1.582	•	•	E=R	1.822	1.467	1.467	•	•	E=R>Ø	2.492	1.333	1.449	•	R>E>S	1.696	1.386	1.386	2.13	.945
17	1.067	.956	1.4	.967	E>R>C	1.22	1.075	.972	1.406	.969	E>R>Ø>C	1.489	1.075	.972	1.406	E>R>C>S	•	•	•	•	•
18	1.778	1.289	2.133	.95	E>R>C	1.51	1.634	1.199	1.903	.957	E>Ø>R>C	1.779	1.675	1.241	2.068	E>R>S>C	•	•	•	•	•
19	1.241	.889	1.716	.914	E>R>C	.811	.927	.695	1.197	.941	E>Ø>R>C	2.469	1.154	.85	1.619	E>R>C>S	•	•	•	•	•
20	1.072	1.361	1.922	.928	R>E>C	1.443	1.058	1.347	1.908	.927	R>E>Ø>C	1.716	1.074	1.363	1.924	R>E>C>S	•	•	•	•	•
21	1.121	1.363	2.424	.859	R>E>C	.818	.904	1.047	1.162	.987	Ø>R>E>C	2.046	.997	1.32	2.343	R>E>S>C	•	•	•	•	•
	1.349	.963	1.703	.888		.938	1.001	.825	1.252	.926		2.003	1.171	1.032	1.721		1.138	.91	.91	1.79	.754

Table 6.5b. Colonial houses of Recife. Basic syntactic data on main functions for all complexes in different building types.

		RRA values of key functions minimal living					plus carrier						plus the street					plus kitchen linked to carrier				
type	house	Rec.	Eat.	Cook.	BDF	order	carrier	Rec.	Eat.	Cook.	BDF	order	st.	Rec.	Eat.	Cook.	order	carrier.	Rec.	Eat.	Cook.	BDF
urban sobrados	13	1.333	1.302	1.798	.972	E>R>C	1.5	1.358	1.33	1.811	.974	E>R>Ø>C	1.754	1.358	1.33	1.811	E>R>S>C	•	•	•	•	•
	15	1.367	1.75	1.846	.98	R>E>C	1.778	1.356	1.733	1.844	.98	R>E>Ø>C	2.089	1.378	1.756	1.866	R>E>C>S	•	•	•	•	•
	17	1.067	.956	1.4	.967	E>R>C	1.22	1.075	.972	1.406	.969	E>R>Ø>C	1.489	1.075	.972	1.406	E>R>C>S	•	•	•	•	•
	20	1.072	1.361	1.922	.928	R>E>C	1.443	1.058	1.347	1.908	.927	R>E>Ø>C	1.716	1.074	1.363	1.924	R>E>C>S	•	•	•	•	•
		1.209	1.342	1.741	.962		1.485	1.212	1.346	1.742	.962		1.762	1.221	1.355	1.752						
semi-rural sobrados	14	1.199	1.007	1.774	.928	E>R>C	1.067	.955	.889	1.467	.935	E>Ø>R>C	2.183	1.024	.985	1.719	E>R>C>S	•	•	•	•	•
	19	1.241	.889	1.716	.914	E>R>C	.811	.927	.695	1.197	.941	E>Ø>R>C	2.469	1.154	.85	1.619	E>R>C>S	•	•	•	•	•
	21	1.121	1.363	2.424	.859	R>E>C	.818	.904	1.047	1.162	.987	Ø>R>E>C	2.046	.997	1.32	2.343	R>E>S>C	•	•	•	•	•
		1.187	1.086	1.971	.9		.898	.929	.877	1.275	.954		2.232	1.058	1.052	1.894						
urban casas térreas	2	1.374	.589	2.159	.715	E>R>C	.435	.58	.435	1.16	.78	E=Ø>R>C	1.885	1.015	.725	2.175	E>R>S>C	•	•	•	•	•
	3	1.57	.589	1.178	.827	E>C>R	.58	.87	.435	1.015	.864	E>Ø>R>C	2.03	1.16	.725	1.305	E>R>C>S	•	•	•	•	•
	4	1.57	.785	1.766	.872	E>R>C	.725	1.16	.58	1.015	.905	E>Ø>C>R	1.595	1.305	.87	1.74	E>R>S>C	•	•	•	•	•
	5	1.305	.58	1.16	.872	E>C>R	.564	.676	.451	.789	.938	E>Ø>R>C	1.804	1.015	.676	1.24	E>R>C>S	•	•	•	•	•
	6	1.74	.58	1.45	.787	E>C>R	.676	1.353	.451	.902	.785	E>Ø>C>R	1.691	1.466	.676	1.466	E>R=C>S	•	•	•	•	•
	8	2	1	1.182	.885	E>C>R	.603	.829	.678	.754	.992	Ø>E>C>R	2.336	1.658	1.055	1.281	E>C>R>S	•	•	•	•	•
	10	1.265	.605	1.485	.849	E>R>C	.625	.913	.529	1.057	.906	E>Ø>R>C	1.49	1.153	.625	1.49	E>R>C=S	•	•	•	•	
	18	1.778	1.289	2.133	.95	E>R>C	1.51	1.634	1.199	1.903	.957	E>Ø>R>C	1.779	1.675	1.241	2.068	E>R>S>C	•	•	•	•	•
		1.575	.752	1.564	.845		.715	1.002	.595	1.074	.891		1.826	1.306	.824	1.596						
semi-rural casas térreas	1	.573	.573	•	•	E=R	.785	.393	.393	•	•	E=R>Ø	2.255	.564	1.24	•	R>E>S	.58	.435	.435	1.45	.563
	7	1.466	.676	2.029	.789	E>R>C	.727	1.091	.545	1.273	.863	E>Ø>R>C	2.297	1.213	.957	2.106	E>R>C>S	•	•	•	•	•
	9	1.356	.829	1.884	.872	E>R>C	.447	.574	.574	.894	.942	Ø>E=R>C	2.145	1.045	.88	1.98	E>R>C>S	•	•	•	•	•
	11	.817	.721	1.105	.959	E>R>C	.51	.552	.51	.722	.971	E=Ø>R>C	2.016	.683	.922	1.298	R>E>C>S	•	•	•	•	•
	12	1.537	1.196	1.947	.952	E>R>C	1.054	1.302	1.054	1.519	.973	E=Ø>R>C	2.494	1.247	1.065	1.871	E>R>C>S	•	•	•	•	•
	16	1.582	1.582	•	•	E=R	1.822	1.467	1.467	•	•	E=R>Ø	2.492	1.333	1.449	•	R>E>S	1.696	1.386	1.386	2.13	.945
		1.222	.93	1.741	.893		.891	.896	.757	1.102	.937		2.283	1.014	1.085	1.814		1.138	.91	.91	1.79	.754
		1.349	.963	1.703	.888		.938	1.001	.825	1.252	.926		2.003	1.171	1.032	1.721		1.138	.91	.91	1.79	.754

Table 6.6. Colonial houses of Recife. RRA values for all interior spaces (minimal living complex)

House 1

s.visitas	s.jantar	alcova		alcova	alcova
5 =	6 >	4 =	1 =	2 =	3
.573		.86			

House 2

s.jantar	alcova		copa	alcova	s.visitas	cozinha
3 >	4 =	5 >	2 >	6 =	7 >	1
.589	.981		1.178	1.374		2.159

House 3

s.jantar		cozinha	alcova	alcova	s.visitas	
4 >	5 >	2 >	6 =	3 =	7 >	1
.589	.785	1.178	1.57			2.159

House 4

	s.jantar		alcova	alcova	s.visitas	cozinha
5 >	2 >	7 =	4 =	3 >	6 >	1
.393	.785	.981			1.57	1.766

House 5

	s.jantar	cozinha	s.visitas	alcova	alcova	alcova	
6 =	5 >	3 >	8 =	7 >	2 =	4 >	1
.58		1.16	1.305		1.45		2.03

House 6

s.jantar		alcova		alcova	alcova	cozinha	s.visitas
4 =	6 >	5 =	8 >	3 =	1 =	2 >	7
.58		1.16		1.45			1.74

House 7

	s.jantar	alcova	alcova	alcova		copa	s.visitas	cozinha
6 >	7 >	3 >	1 =	2 >	9 >	4 >	5 >	8
.451	.676	.789	.902		1.015	1.24	1.466	2.029

House 8

s.jantar		cozinha			alcova	alcova	s.visitas		
5 =	7 >	4 >	8 >	3 >	6 >	9 =	10 >	1 =	2
1		1.182	1.364	1.545	1.727	2		2.273	

House 9

s.jantar	alcova		alcova	s.visitas		alcova	alcova	cozinha	alcova	
10 >	9 >	5 >	4 >	11 =	6 >	8 >	3 >	2 >	7 >	1
.829	.904	.98	1.206	1.356		1.432	1.582	1.884	2.035	2.562

House 10

s.jantar		alcova	alcova	copa		alcova		alcova	s.visitas	alcova	cozinha	
8 >	11 >	5 =	9 >	4 >	13 >	6 >	10 =	3 >	12 =	7 >	2 >	1
.605	.66	.935		.99	1.045	1.155	1.21		1.265		1.485	2.09

Key to abbreviations: T- transition space; St - stairs; s. - sala; corr - corridor; entr. - entrance lobby; lvtry. - lavatory.

House 11

		alcova	alcova	s.jantar	alcova		s.visitas			cozinha			
4 =	7 >	8 =	10 =	11 =	5 =	3 >	14 >	6 >	9 >	12 >	1 >	13 >	2
.625		.721					.817	.865	1.009	1.105	1.297	1.393	1.442

House 12

					s.jantar		alcova	copa			s.visitas	alcova	cozinha	alcova	alcova	alcova
9 >	7 >	13 >	8 >	6 >	14 >	10 >	11 >	16 >	4 >	5 =	15 >	12 >	17 >	2 =	1 >	3
.82	.922	.991	1.025	1.093	1.196	1.332	1.367	1.435	1.469	1.537		1.708	1.947	1.981		2.05

House 13

					s.jantar	alcova	s.visitas			alcova					cozinha	copa	balcony
8 =	12 >	7 =	15 >	13 >	3 =	4 >	14 =	5 >	17 =	6 >	11 >	16 =	9 =	10 >	1 =	2 >	18
.899		.961		1.271	1.302		1.333		1.395		1.643	1.767			1.798		1.829

House 14

			s.jantar		s.visitas			alcova		copa		alcova	alcova	alcova	alcova			alcova	cozinha	
12 >	10 =	16 >	13 >	8 >	21 >	9 >	6 =	7 >	19 =	14 >	11 >	4 >	2 >	17 =	5 >	3 >	1 >	18 >	15 >	20
.815	.839		1.007	1.127	1.199	1.223	1.247		1.367		1.462	1.51	1.534	1.558		1.582	1.702	1.726	1.774	2.23

House 15

							s.visitas			s.jantar	alcova		balcony		cozinha					
11 >	14 >	16 >	9 >	10 >	18 =	19 =	8 >	5 >	17 >	6 =	7 >	20 >	21 >	4 =	3 >	15 >	1 =	2 >	12 >	13
.959	1.031	1.151	1.175	1.319	1.367			1.438	1.63	1.75		1.774	1.822	1.846		1.99	2.302		2.397	2.853

House 16

				alcova		alcova			s.visitas	s.jantar		alcova				alcova		alcova	alcova	
11 >	12 >	15 >	10 >	9 >	17 >	7 >	8 >	13 >	20 =	21 =	6 >	14 >	3 >	2 =	4 >	18 =	5 >	16 >	19 >	1
.959	.983	1.055	1.079	1.127	1.223	1.247	1.486	1.51	1.582			1.63	.654	1.702		1.942		1.99	2.038	2.11

House 17

			s.jantar		s.visitas	alcova	alcova		alcova						cozinha			alcova			
11 =	16 >	12 >	6 >	20 >	8 =	9 >	7 >	18 =	10 >	22 =	19 >	3 >	4 =	15 =	2 >	14 =	13 >	5 >	17 >	1 >	21
.689		.733	.956	1	1.067		1.089	1.111		1.133		1.356	1.4			1.444		1.467	1.511	1.8	1.844

House 18

					s.jantar	alcova			alcova	alcova		alcova	copa	alcova	alcova	alcova	s.visitas			cozinha	
12 =	17 >	10 =	20 >	8 =	19 >	9 >	18 >	22 >	7 >	5 =	6 >	14 >	15 =	4 =	13 >	16 >	21 >	3 >	2 =	11 >	1
1		1.044		1.289		1.333	1.378	1.444	1.489	1.578		1.644	1.689			1.733	1.778	1.978	2.133		2.422

House 19

s.jantar				s.visitas		alcova	copa			alcova	alcova				cozinha			balcony				
20 >	10 >	8 =	13 >	23 >	7 >	19 =	11 >	14 =	18 >	22 >	4 >	21 >	5 =	6 >	12 >	9 >	2 >	3 =	16 >	17 >	1 >	15
.889	.931	1.075		1.241	1.261	1.282		1.303		1.448	1.572	1.613	1.696		1.716	1.737	1.965	2.006		2.047	2.399	2.44

House 20

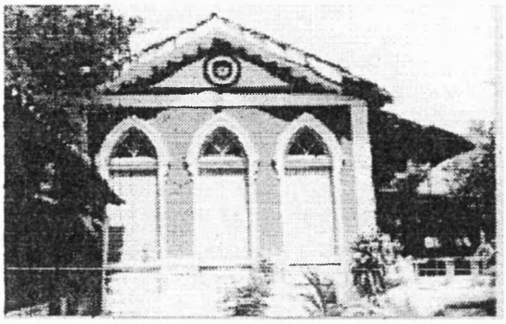
					s.visitas			s.jantar	alcova	alcova		alcova	balcony						copa	cozinha					
17 >	20 >	13 =	14 >	23 >	15 >	7 >	21 >	9 >	11 =	10 >	25 =	8 >	26 >	5 >	4 >	19 =	18 >	24 >	6 >	2 =	1 >	3 >	22 >	16 >	12
.817	.919	1.021		1.055	1.072	1.259	1.293	1.361	1.378		1.395		1.48	1.548	1.582	1.633		1.735	1.769	1.922		1.939	1.973	2.007	2.416

House 21

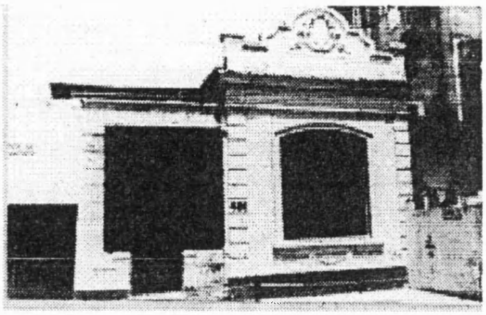
					s.visitas				alcova	alcova	s.jantar	alcova	alcova	alcova	alcova				alcova	alcova		alcova	alcova	alcova		copa	cozinha
17 =	26 >	13 >	19 >	27 =	25 >	9 =	16 >	12 >	11 >	10 >	28 =	15 >	18 >	20 >	5 >	8 >	7 >	3 =	4 >	6 >	23 =	22 >	21 >	2 >	1 >	14 >	24
.939		.969	1.045	1.121		1.242		1.257	1.272	1.333	1.363		1.469	1.515	1.545	1.56	1.575	1.606		1.651	1.697		1.757	1.954	2	2.03	2.424

CHAPTER 7

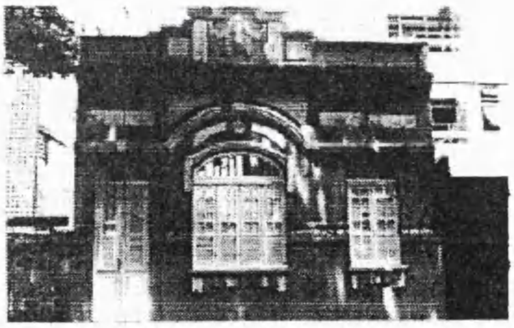
Figure 7. Post-colonial houses of Recife.



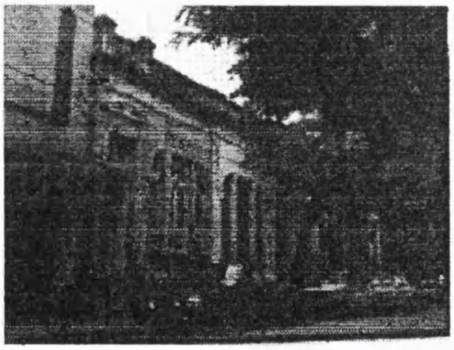
House 23



House 25



House 26

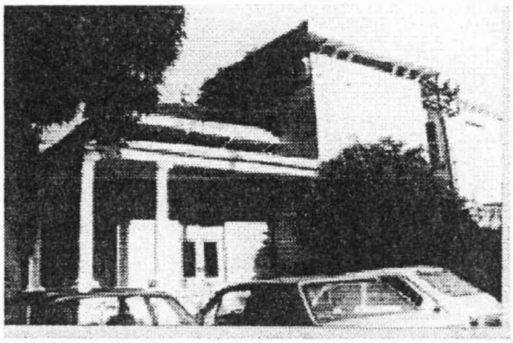


House 27

House 29

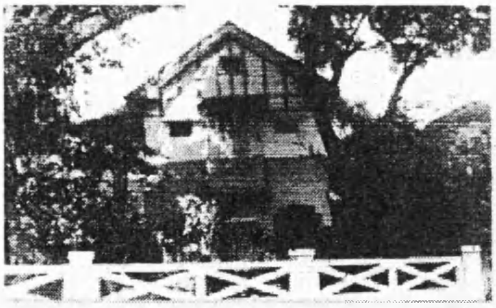
House 31

Figure 7. Post-colonial houses of Recife. (cont.)



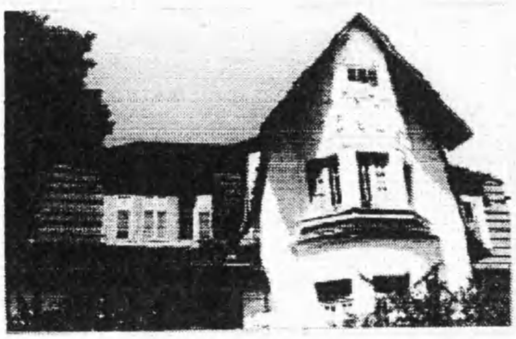
House 32

House 35



House 37

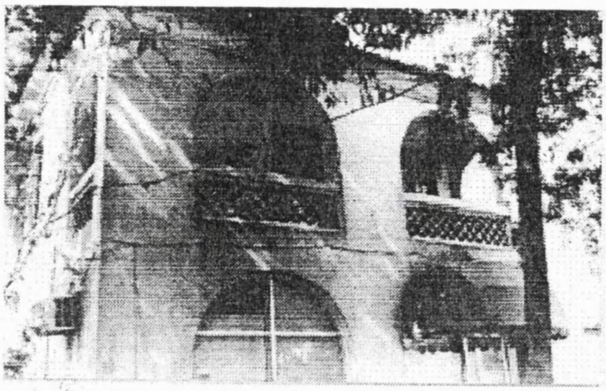
House 39



House 40

House 41

Figure 7. Post-colonial houses of Recife. (cont.)



House 45

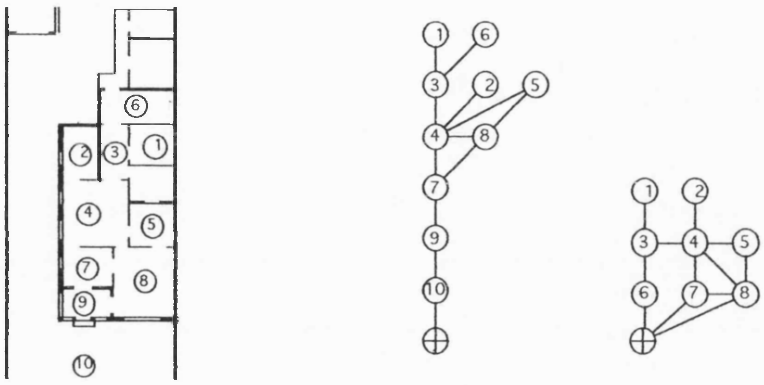
House 46

House 42

Figure 7.1. Post-colonial houses of Recife

a) *House 25*

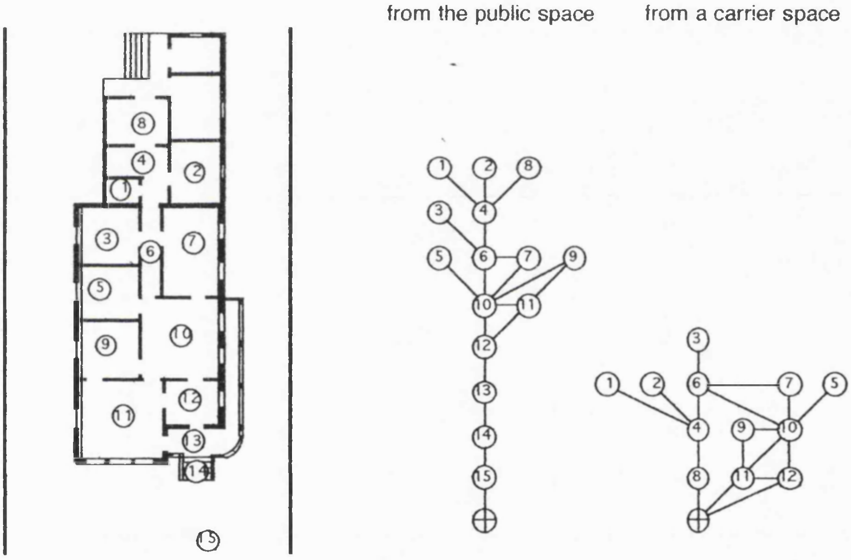
from the public space — from a carrier space



s.jantar	copa	quarto	s.visita	quarto	quarto	wc/b	cozinha*
4 >	3 >	8 >	7 =	5 >	2 >	1 =	6

b) *House 33*

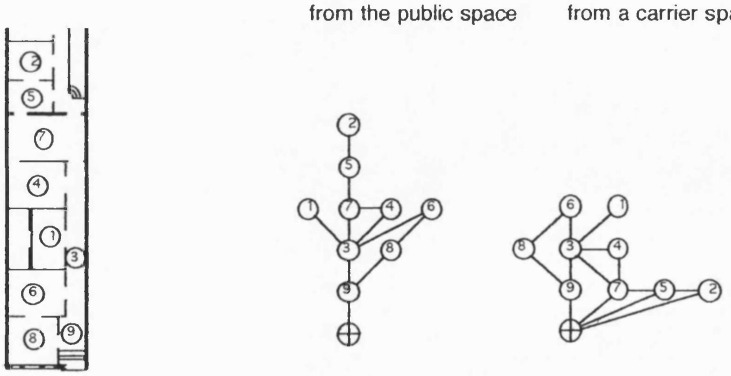
from the public space — from a carrier space



corr.	s.jantar	copa	quarto	s.visita	quarto	wc/b	s.espera	quarto	quarto	larder	cozinha*
6 >	10 >	4 >	7 >	11 >	9 =	3 =	12 >	5 >	2 =	1 =	8

c) *House 27*

from the public space — from a carrier space

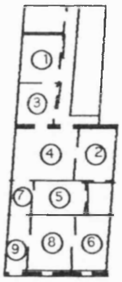
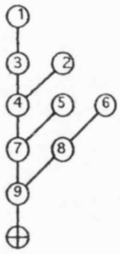
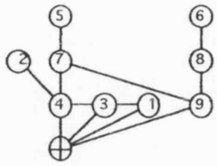


corr.	s.jantar	quarto	quarto	entr.	quarto	copa	s.visita	cozinha*
3 >	7 >	4 >	6 =	9 >	1 =	5 >	8 >	2

*spaces arrayed in ascending order of RRA values (minimal living complex)

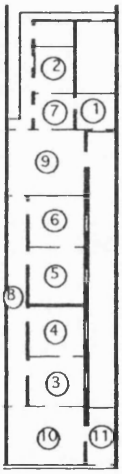
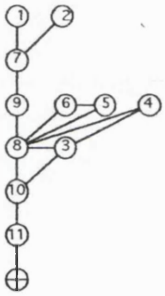
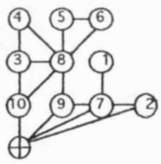
Figure 7.2. Post-colonial houses of Recife

a) *House 26* | from the public space | from a carrier space

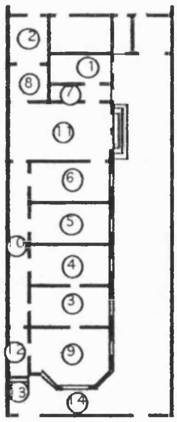
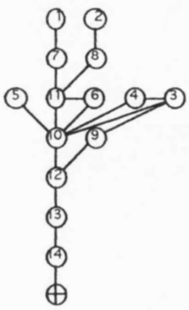
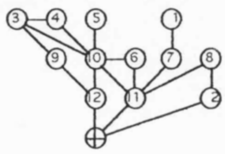
T	s.jantar	T	copa	quarto	s.visita	quarto	cozinha	quarto*
7 >	4 >	9 >	3 >	5 >	8 =	2 >	1 >	6

b) *House 29* | from the public space | from a carrier space

corr.	s.jantar	copa	quarto	s.visita	quarto	quarto	quarto	wc/b	cozinha*
8 >	9 >	7 =	3 >	10 =	6 =	4 =	5 >	1 =	2

c) *House 34* | from the public space | from a carrier space

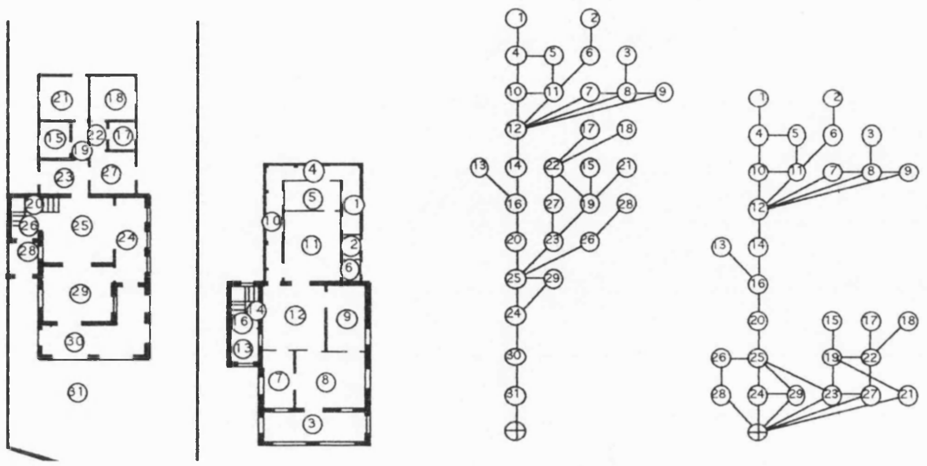
corr.	s.jantar	quarto	quarto	T	quarto	copa	T	quarto	s.visita	wc/b	cozinha*
10 >	11 >	6 >	3 >	12 =	4 >	8 =	7 >	5 >	9 >	1 =	2

***spaces arrayed in ascending order of RRA values (minimal living complex)**

Figure 7.3. Post-colonial houses of Recife

a) *House 46*

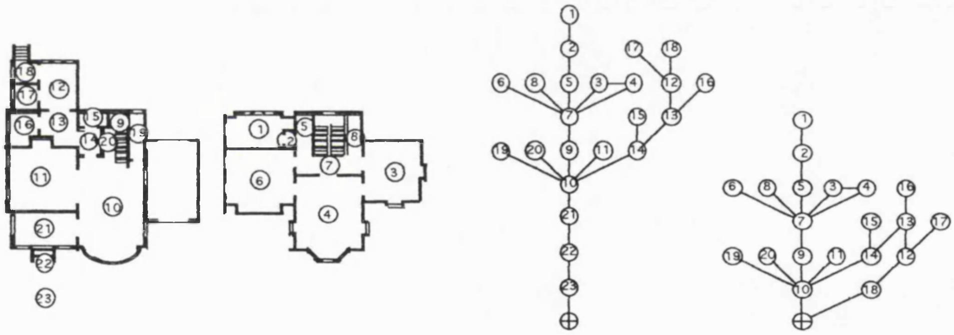
from the public space   from a carrier space



T	St.	T	s.jantar	T	copa	quarto	varanda	wc/b	T	espera	s.visita	quarto	quarto	quarto	T	cozinha	quarto
16 >	20 >	14 >	25 >	12 >	23 >	11 >	10 =	13 >	26 >	24 =	29 >	8 >	9 =	7 >	19 >	27 >	5 >
varanda	T	T	lobby	terrace	wc/b	quarto	varanda	wc/b	quarto	larder*							
4 >	6 >	22 >	28 >	3 >	15 =	21 >	1 >	2 >	18 =	17							

b) *House 40*

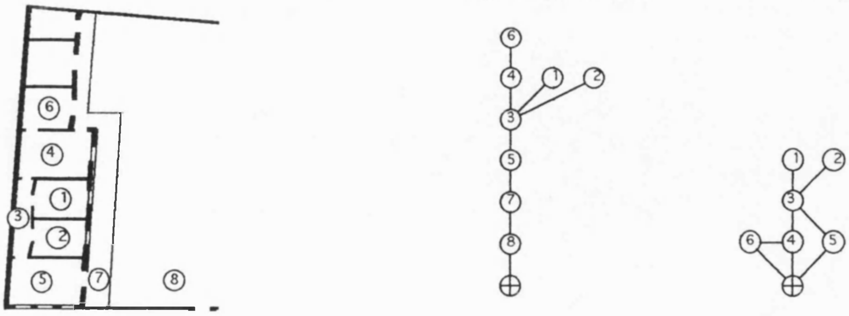
from the public space   from a carrier space



s.jantar	St.	T	landing	copa	store	store	s.visita	T	quarto	quarto	?	wc/b	quarto	cozinha	larder	T	T
10 >	9 >	14 =	7 >	13 >	20 =	19 =	11 >	5 >	4 =	3 >	8 =	15 =	6 >	12 >	16 >	2 >	18 =
store	wc/b*																
17 >	1																

c) *House 22*

from the public space   from a carrier space



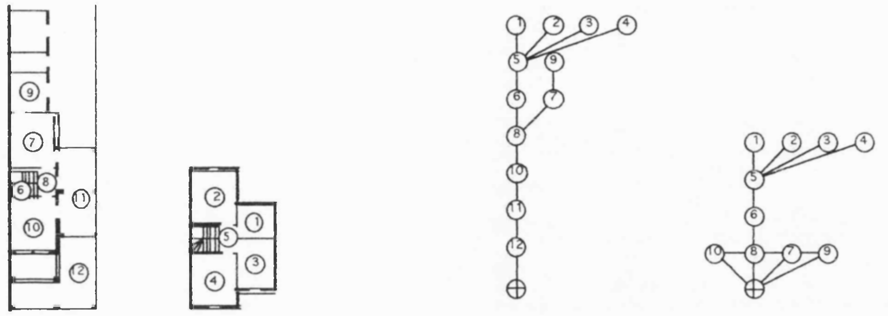
corr.	s.jantar	s.visita	quarto	quarto	cozinha*
3 >	4 >	5 =	2 =	1 >	6

***spaces arrayed in ascending order of RRA values (minimal living complex)**

Figure 7.4. Post-colonial houses of Recife

a) *House 28*

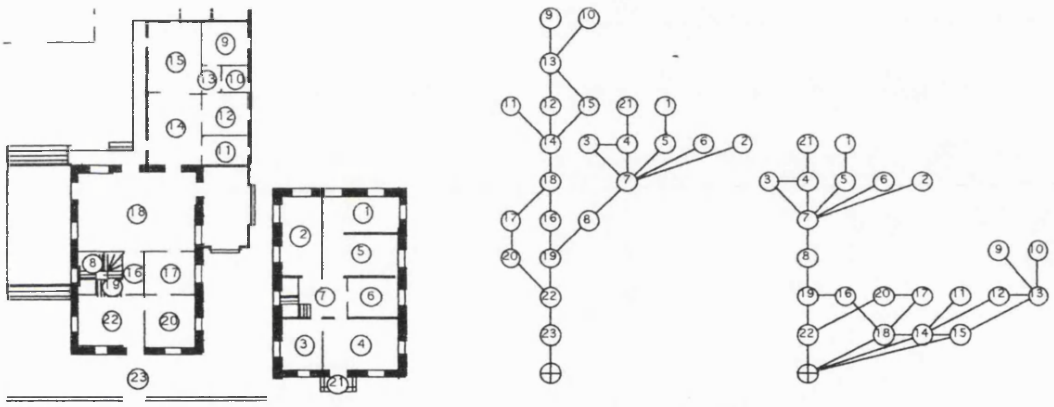
from the public space — from a carrier space



landing	St.	T	wc/b	s.jantar	quarto	quarto	quarto	s.visita	cozinha*
5 =	6 >	8 >	1 =	7 =	3 =	4 =	2 >	10 >	9

b) *House 43*

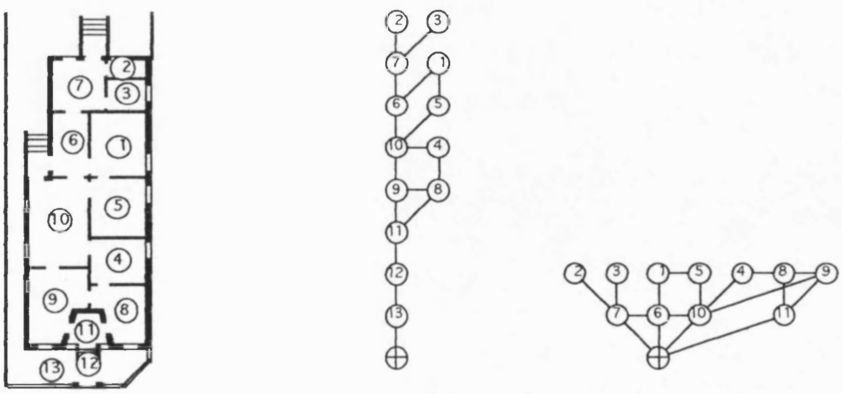
from the public space — from a carrier space



T	T	St.	s.jantar	landing	copa	s.visita	quarto	quarto	cozinha	quarto	quarto	quarto	quarto	quarto	bath	wc/b	T
19 >	16 >	8 =	18 >	7 >	14 >	22 >	20 >	17 >	15 =	12 >	4 >	5 =	3 >	2 =	6 >	11 >	13 >
balcony	quarto	larder	quarto*														
21 >	1 >	10 =	9														

c) *House 31*

from the public space — from a carrier space



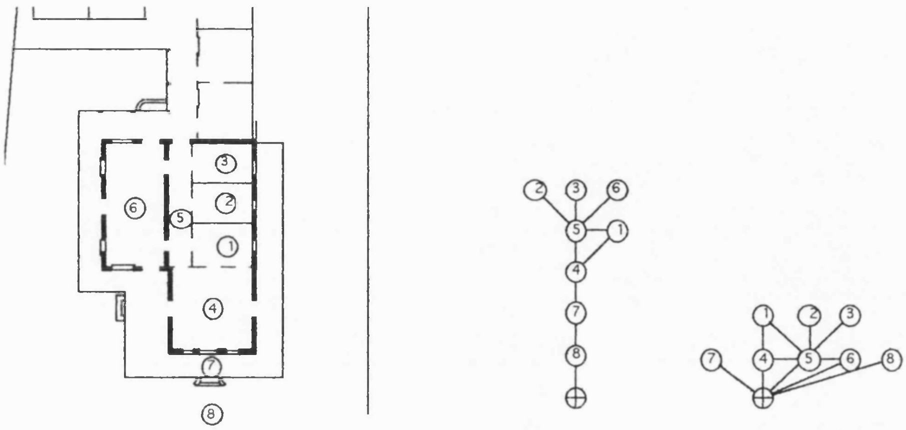
s.jantar	copa	s.visita	cozinha	quarto	quarto	quarto	quarto	entr.	larder	wc/b*
10 >	6 >	9 >	7 =	4 >	5 >	1 >	8 >	11 >	2 =	3

***spaces arrayed in ascending order of RRA values (minimal living complex)**

Figure 7.5. Post-colonial houses of Recife

a) *House 23*

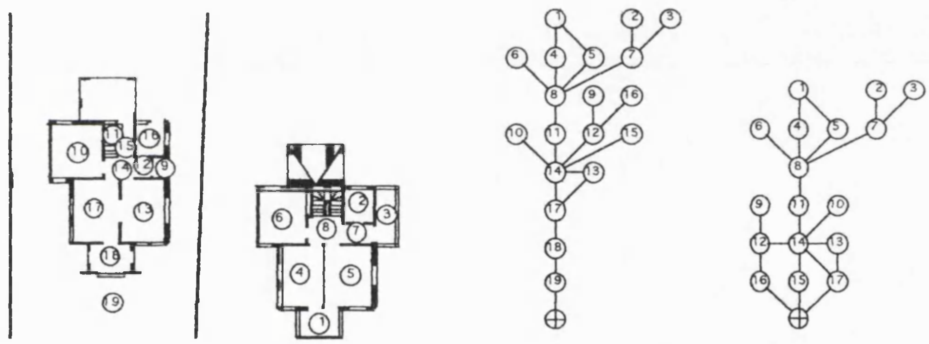
from the public space from a carrier space



corr.	s.visita	quarto	s.jantar	quarto	quarto*
5 >	4 =	1 >	6 =	2 =	3

b) *House 38*

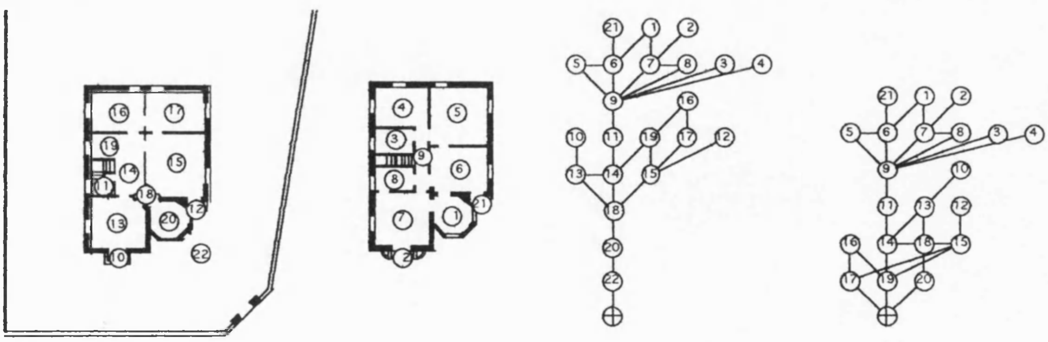
from the public space from a carrier space



St.	landing	T	T	T	quarto	quarto	s.visita	s.jantar	quarto	quarto	T	cozinha	wc/b	balcony	wc	terrace*
11 >	8 =	14 >	7 =	12 >	4 =	5 >	17 =	13 >	10 =	6 =	15 >	16 =	2 =	1 =	9 =	3

c) *House 42*

from the public space from a carrier space



St.	landing	T	T	T	s.visita	quarto	quarto	quarto	quarto	wc/b	quarto	s.jantar	entr.	cozinha	gabinete	balcony	balcony
11 >	9 =	14 >	18 >	19 >	13 >	7 =	6 >	5 =	8 >	3 =	4 >	15 >	20 =	16 =	1 >	10 >	2 =

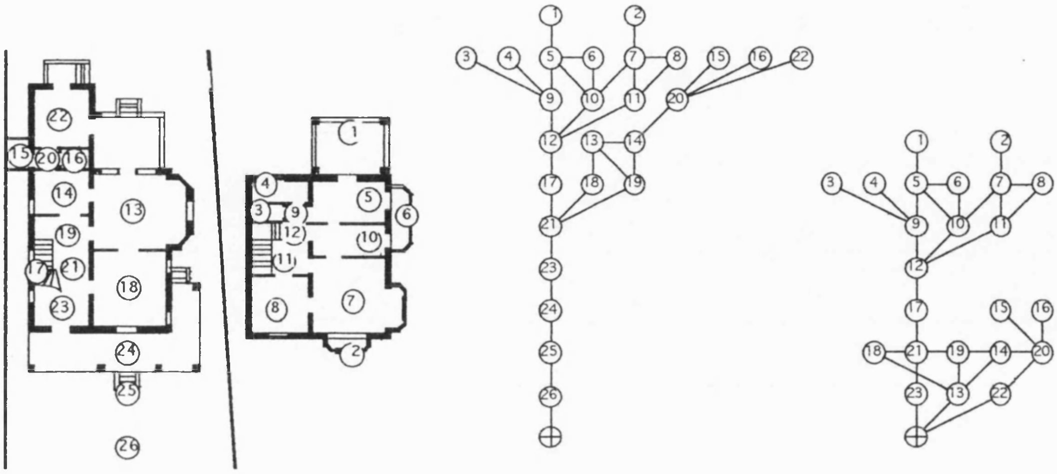
balcony	copa	balcony*
21 >	17 >	12

***spaces arrayed in ascending order of RRA values (minimal living complex)**

Figure 7.6. Post-colonial houses of Recife

a) *House 44*

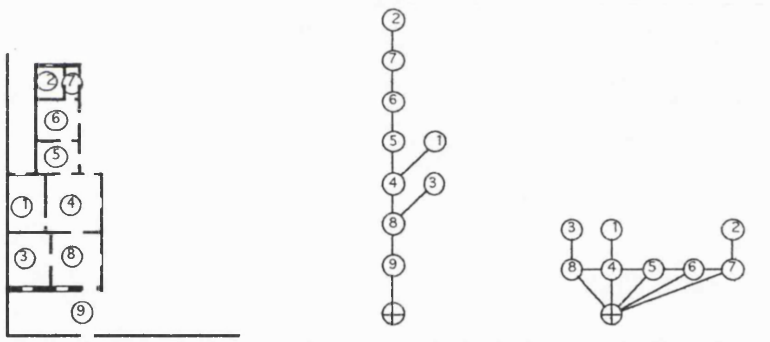
from the public space | from a carrier space



landing	St.	T	quarto	T	T	T	s.visita	quarto	copa	quarto	T	varanda	s.jantar	quarto	bath	wc	T	
12 >	17 >	21 >	10 >	9 >	19 >	11 >	18 >	5 >	14 >	7 =	23 >	6 >	13 >	8 >	4 >	3 >	20 >	
terrace	balcony	cozinha	wc	larder*														
1 >	2 >	22 =	15 =	16														

b) *House 24*

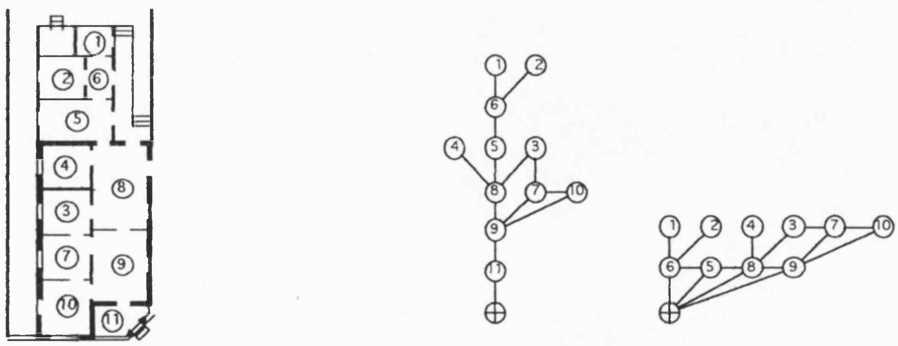
from the public space | from a carrier space



s.jantar	copa	cozinha	s.visita	T	quarto	quarto	wc/b*
4 =	5 >	6 >	8 >	7 =	1 >	3 >	2

c) *House 30*

from the public space | from a carrier space



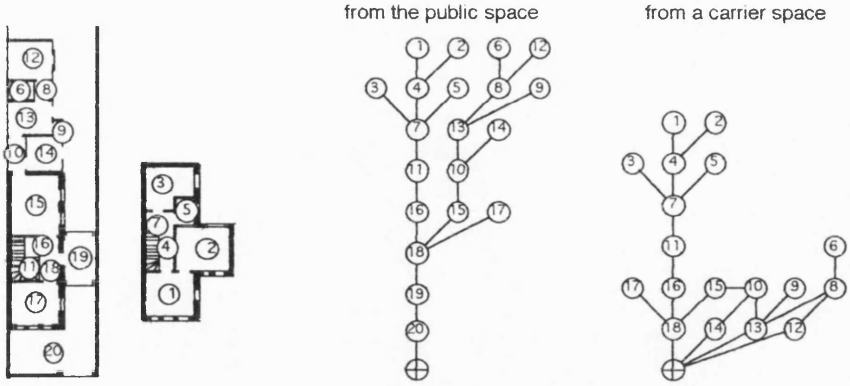
s.jantar	cozinha	s.visita	quarto	T	quarto	quarto	quarto	quarto	wc/b*
8 >	5 >	9 >	3 >	6 >	4 >	7 >	10 >	2 =	1

***spaces arrayed in ascending order of RRA values (minimal living complex)**

Figure 7.7. Post-colonial houses of Recife

a) *House 39*

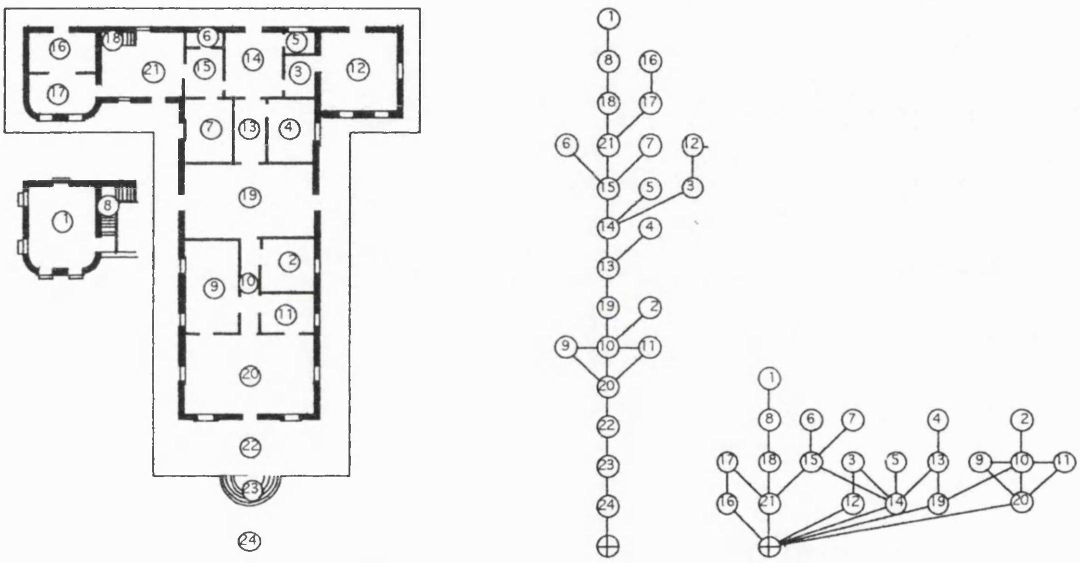
from the public space — from a carrier space



entr.	s.jantar	T	St.	T	T	cozinha	s.visita	copa	T	T	wc/b	quarto	larder	quarto	quarto	quarto	wc/b*
18 >	15 =	16 >	11 =	10 >	7 >	13 >	17 >	14 >	4 >	8 >	5 =	3 >	9 >	2 =	1 >	12 =	6

b) *House 41*

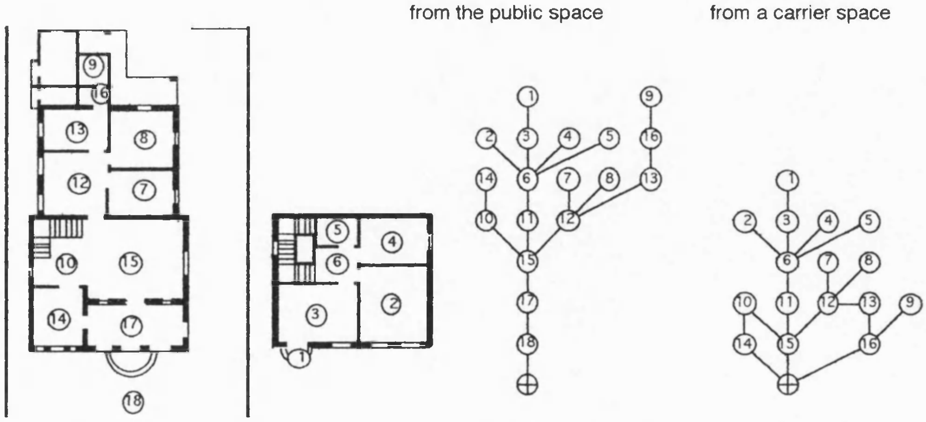
from the public space — from a carrier space



copa	T	T	?	s.jantar	T	store	wc	quarto	wc/b	T	St.	?	cozinha	s.visita	quarto	quarto	quarto	T
14 >	15 >	13 >	21 >	19 >	3 >	5 >	6 =	7 >	4 >	10 >	18 >	17 >	12 >	20 >	9 =	11 >	2 =	8
	gabinete?*																	
>	16 >	1																

c) *House 36*

from the public space — from a carrier space



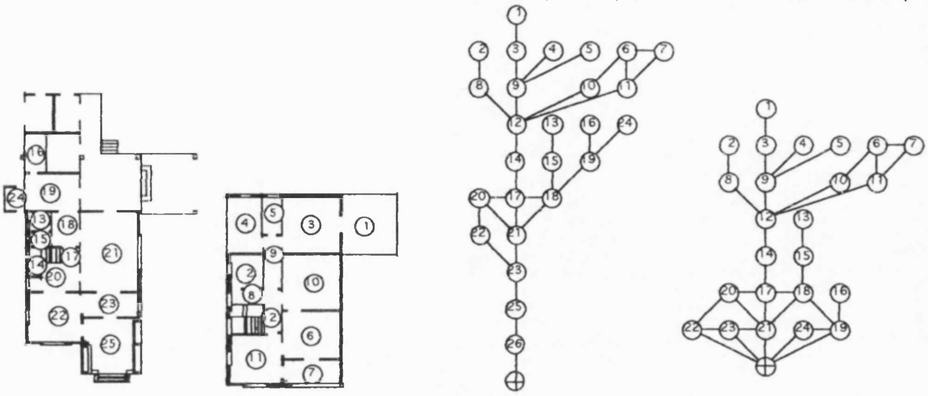
s.jantar	St.	almoço	landing	T	cozinha	quarto	study	quarto	quarto	quarto	wc/b	T	s.visita	balcony	wc/b*
15 >	11 >	12 >	6 >	10 >	13 >	8 =	3 =	7 >	2 =	4 =	5 >	16 =	14 >	1 >	9

***spaces arrayed in ascending order of RRA values (minimal living complex)**

a) *House 45*

from the public space

from a carrier space

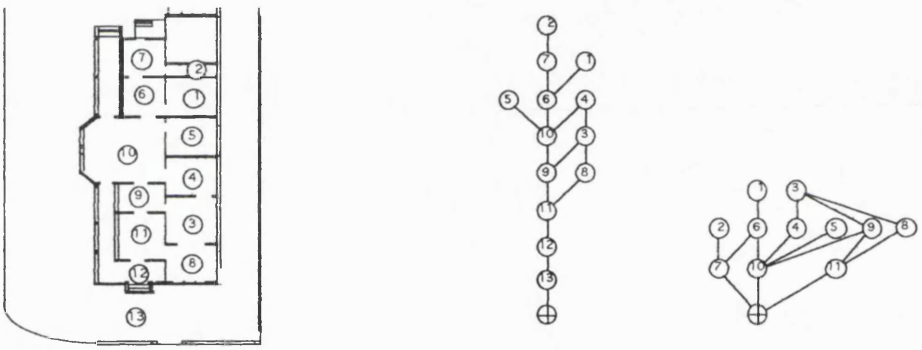


landing	St.	T	copa	T	s.jantar	quarto	quarto	hall	T	cozinha	lvtry.	espera	quarto	quarto	store	quarto	terrace
12 =	14 >	17 >	18 >	9 =	21 >	11 >	10 >	20 =	8 >	19 >	15 >	23 =	3 >	4 =	5 >	6 >	7 >
s.visita	wc/b	b.lobby	larder	wc	terrace*												
22 >	2 >	24 =	16 >	13 >	1												

b) *House 32*

from the public space

from a carrier space

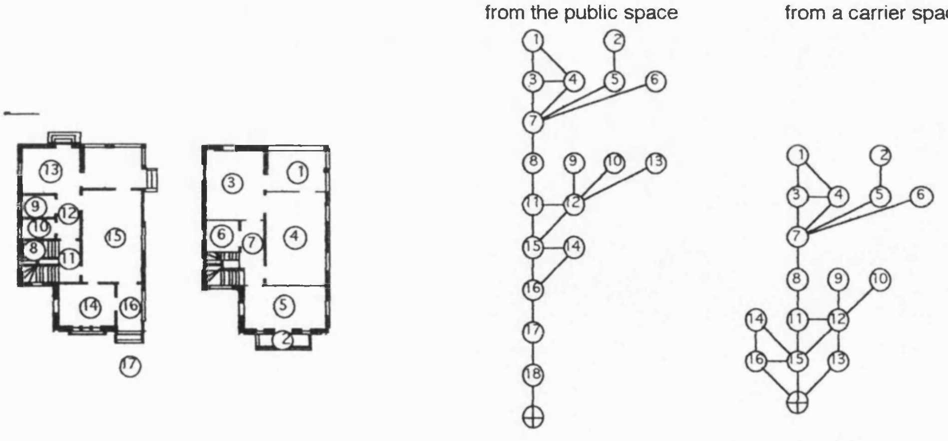


s.jantar	copa	gabinete	quarto	quarto	quarto	s.visita	cozinha	wc/b	toilette	larder*
10 >	6 =	9 >	4 >	3 >	5 >	11 =	7 >	1 >	8 >	2

c) *House 37*

from the public space

from a carrier space

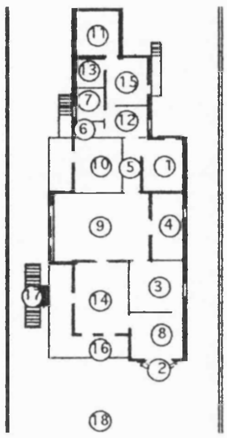


St.	T	landing	T	s.jantar	quarto	quarto	quarto	wc/b	cozinha	entr.	s.visita	larder	wc/b	terrace	balcony*
8 =	11 >	7 >	12 >	15 >	3 =	4 >	5 >	6 >	13 =	16 =	14 =	9 =	10 >	1 >	2

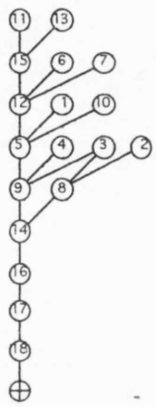
***spaces arrayed in ascending order of RRA values (minimal living complex)**

Figure 7.9. Post-colonial houses of Recife

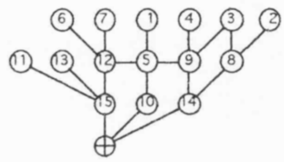
House 35



from the public space



from a carrier space



T	copa	s.jantar	s.visita	cozinha	quarto	quarto	quarto	quarto	wc	bath	gabinete	larder	quarto	balcony
5 >	12 =	9 >	14 =	15 =	3 >	1 =	10 >	4 =	6 =	7 >	8 >	13 =	11 >	2

spaces arrayed in ascending order of RRA values (minimal living complex)

Figure 7.10. Post-colonial houses. Permeability graphs rooted from the public space

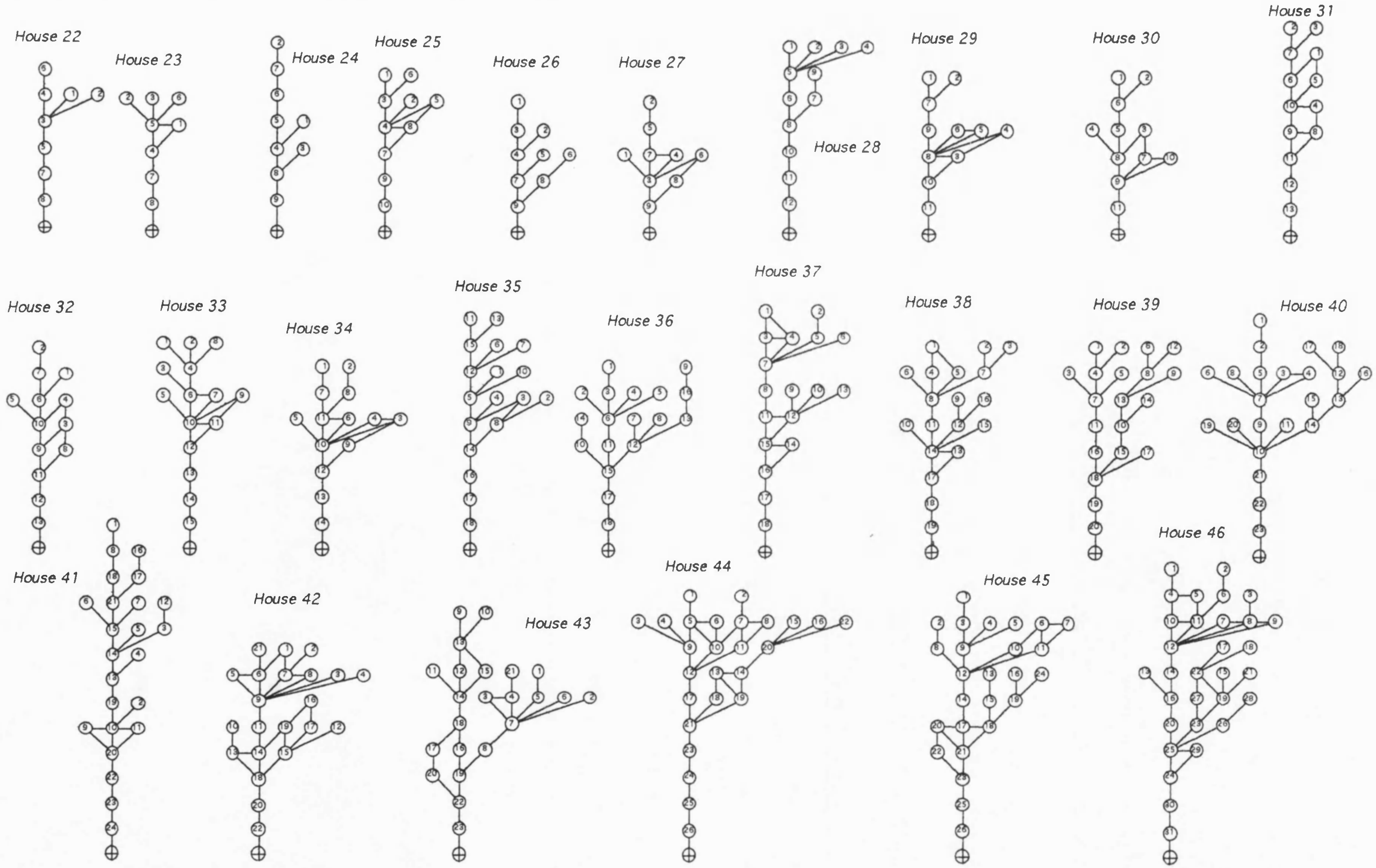


Figure 7.11. Post-colonial houses. Permeability graphs rooted from a carrier space

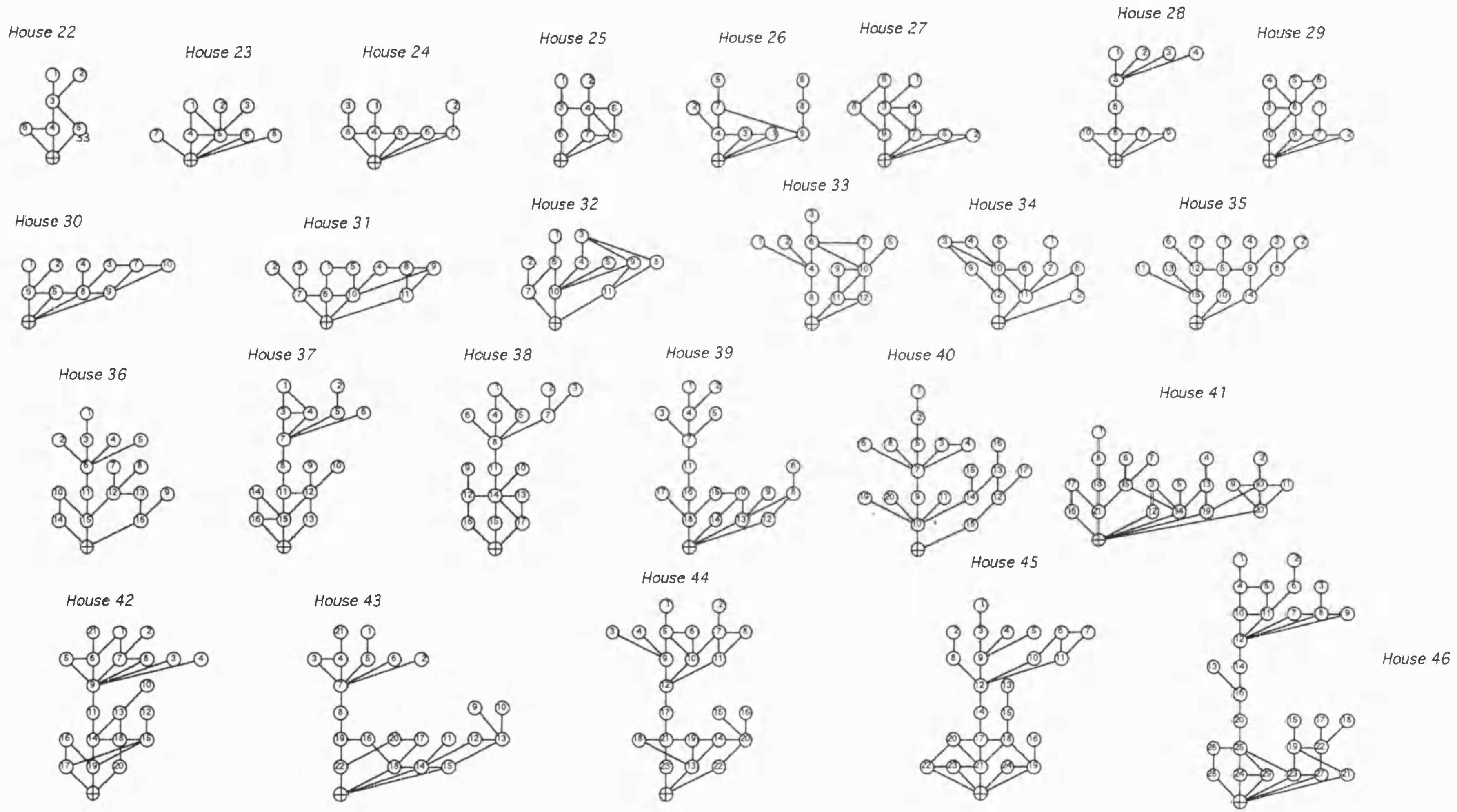


Table 7. Post-colonial houses of Recife. Location

No of plan	address: street	no.	area of survey	neighbourhood in the surveyed area
22	Rua Soares de Azevedo	144	VC	Poço da Panela
23	Rua Real da Torre	1435	VC	Torre
24	Rua Castro Leão	150	VC	Madalena
25	Avenida Manoel Borba	401	BV	Boa Vista
26	Avenida Manoel Borba	371	BV	Boa Vista
27	Rua das Pernambucanas	120	VC	Graças
28	Rua da Baixa Verde	403	VC	Derby
29	Rua do Sossego	53	BV	Boa Vista
30	Rua do Príncipe	464	BV	Boa Vista
31	Rua do Lima	327	BV	Santo Amaro
32	Avenida Cons.Rosa e Silva	258	VC	Espinheiro
33	Avenida Manoel Borba	440	BV	Boa Vista
34	Rua do Sossego	67	BV	Boa Vista
35	Rua José de Alencar	346	BV	Boa Vista
36	Rua Amaury de Medeiros	200	VC	Derby
37	Rua do Futuro	14	VC	Aflitos
38	Rua Gervásio Fioravanti	76	VC	Graças
39	Praça do Derby	223	VC	Derby
40	Estrada do Arraial	2901	VC	Casa Amarela
41	Estrada do Arraial	3259	VC	Casa Amarela
42	Rua do Paissandu	189	BV	Paissandu
43	Avenida João de Barros	236	BV	Boa Vista
44	Rua do Paissandu	257	BV	Paissandu
45	Estrada do Arraial	2278	VC	Casa Amarela
46	Rua Feliciano Gomes	262	VC	Derby

Key to abreviations

BV - Boa Vista
VC - Valley of the Capibaribe

Table 7.1a. Post-colonial houses. Basic general and syntactic data on minimal living and reworked complexes

	number of spaces					RRA values minimal living				plus carrier				plus the street				plus kitchen linked to carrier			
house	all	fuct.	trans	F/Tr.	storeys	av.	min.	max.	BDF	av.	min.	max.	BDF	av.	min.	max.	BDF	av.	min.	max.	BDF
22	6	5	1	5	1	1.242	.287	2.006	.493	.953	.392	1.374	.736	1.553	.789	2.593	.745	•	•	•	•
23	6	5	1	5	1	.86	0	1.146	•	.673	0	.982	•	1.303	.676	2.367	.711	.777	.225	1.127	.614
24	8	7	1	7	1	1.74	1.015	2.755	.812	.927	.338	1.578	.622	1.673	.909	2.727	.777	•	•	•	•
25	8	8	0	•	1	.979	.29	1.45	.613	.802	.338	1.353	.676	1.288	.603	2.336	.677	•	•	•	•
26	9	7	2	3.5	1	1.553	.789	2.48	.764	1.091	.636	1.909	.768	1.455	.727	2.182	.785	•	•	•	•
27	9	7	2	3.5	1	1.127	.451	2.029	.626	.836	.454	1.273	.805	1.127	.454	1.999	.636	•	•	•	•
28	10	7	3	2.3	2	1.345	.727	2.182	.778	1.206	.67	1.733	.834	1.574	.88	2.639	.774	•	•	•	•
29	10	9	1	9	1	1.091	.455	1.727	.702	.877	.452	1.432	.759	1.191	.511	1.978	.69	•	•	•	•
30	10	9	1	9	1	1.291	.636	1.909	.786	.932	.452	1.432	.765	1.287	.638	1.915	.785	•	•	•	•
31	11	9	1	9	1	1.192	.603	1.733	.801	.883	.447	1.34	.784	1.569	.935	2.804	.765	•	•	•	•
32	11	10	0	•	1	1.247	.603	2.035	.739	.989	.611	1.532	.837	1.546	.892	2.719	.762	•	•	•	•
33	12	10	1	10	1	.989	.447	1.34	.79	.88	.495	1.265	.837	1.332	.683	2.542	.682	•	•	•	•
34	12	9	3	3	1	1.032	.447	1.659	.708	.897	.44	1.54	.72	1.201	.552	2.167	.673	•	•	•	•
35	15	12	1	12	1	1.263	.637	2.082	.748	1.029	.607	1.669	.805	1.433	.792	2.518	.749	•	•	•	•
36	16	11	4	2.8	2	1.451	.797	2.314	.79	1.238	.649	1.879	.795	1.379	.679	2.15	.764	•	•	•	•
37	16	11	5	2.2	2	1.276	.759	1.821	.856	1.23	.717	1.811	.839	1.43	.821	2.462	.77	•	•	•	•
38	17	11	6	1.8	2	1.186	.649	1.572	.856	1.157	.651	1.581	.854	1.291	.675	2.208	.743	•	•	•	•
39	18	10	7	1.4	2	1.863	1.209	2.51	.897	1.468	.877	2.15	.848	1.744	1.001	2.373	.861	•	•	•	•
40	20	9	6	1.5	3	1.393	.779	2.182	.803	1.258	.671	2.086	.764	1.378	.695	2.163	.769	•	•	•	•
41	21	14	6	2.3	2	1.48	.815	2.325	.797	1.006	.489	1.822	.691	1.683	1.014	2.516	.843	•	•	•	•
42	21	11	6	1.8	2	1.183	.695	1.654	.859	1.152	.689	1.511	.884	1.25	.724	2.047	.795	•	•	•	•
43	22	16	5	3.2	2	1.596	1.022	2.355	.865	1.39	.889	1.965	.879	1.574	.946	2.337	.845	•	•	•	•
44	23	13	7	1.9	2	1.431	.869	2.109	.851	1.354	.85	1.796	.893	1.537	.898	2.581	.787	•	•	•	•
45	24	14	6	2.3	2	1.31	.753	1.835	.852	1.255	.742	1.828	.847	1.395	.818	2.325	.792	•	•	•	•
46	29	15	9	1.7	2	1.578	1.019	2.195	.887	1.513	1.007	2.146	.888	1.595	.999	2.319	.864	•	•	•	•
	14.56	9.96	3.4	4.4	1.52	1.308	.67	1.976	.778	1.08	.583	1.639	.797	1.431	.772	2.359	.762	.777	.225	1.127	.614

Table 7.1b. Post-colonial houses. Basic general and syntactic data on minimal living and reworked complexes for each genotype

		number of spaces				storeys	RRA values minimal living				plus carrier				plus the street				plus kitchen linked to carrier			
genotype	house	all	fuct.	trans	F/Tr.		av.	min.	max.	BDF	av.	min.	max.	BDF	av.	min.	max.	BDF	av.	min.	max.	BDF
E>R>C	22	6	5	1	5	1	1.242	.287	2.006	.493	.953	.392	1.374	.736	1.553	.789	2.593	.745	•	•	•	•
	25	8	8	0	•	1	.979	.29	1.45	.613	.802	.338	1.353	.676	1.288	.603	2.336	.677	•	•	•	•
	26	9	7	2	3.5	1	1.553	.789	2.48	.764	1.091	.636	1.909	.768	1.455	.727	2.182	.785	•	•	•	•
	27	9	7	2	3.5	1	1.127	.451	2.029	.626	.836	.454	1.273	.805	1.127	.454	1.999	.636	•	•	•	•
	28	10	7	3	2.3	2	1.345	.727	2.182	.778	1.206	.67	1.733	.834	1.574	.88	2.639	.774	•	•	•	•
	29	10	9	1	9	1	1.091	.455	1.727	.702	.877	.452	1.432	.759	1.191	.511	1.978	.69	•	•	•	•
	31	11	9	1	9	1	1.192	.603	1.733	.801	.883	.447	1.34	.784	1.569	.935	2.804	.765	•	•	•	•
	33	12	10	1	10	1	.989	.447	1.34	.79	.88	.495	1.265	.837	1.332	.683	2.542	.682	•	•	•	•
	34	12	9	3	3	1	1.032	.447	1.659	.708	.897	.44	1.54	.72	1.201	.552	2.167	.673	•	•	•	•
	40	20	9	6	1.5	3	1.393	.779	2.182	.803	1.258	.671	2.086	.764	1.378	.695	2.163	.769	•	•	•	•
	43	22	16	5	3.2	2	1.596	1.022	2.355	.865	1.39	.889	1.965	.879	1.574	.946	2.337	.845	•	•	•	•
	46	29	15	9	1.7	2	1.578	1.019	2.195	.887	1.513	1.007	2.146	.888	1.595	.999	2.319	.864	•	•	•	•
E>R	23	6	5	1	5	1	.86	0	1.146	•	.673	0	.982	•	1.303	.676	2.367	.711	.777	.225	1.127	.614
		12.6	8.9	2.7	4.7	1.4	1.229			.736	1.02			.787	1.395			.74	.777	.225	1.127	.614
E=R>C	38	17	11	6	1.8	2	1.186	.649	1.572	.856	1.157	.651	1.581	.854	1.291	.675	2.208	.743	•	•	•	•
R>E>C	42	21	11	6	1.8	2	1.183	.695	1.654	.859	1.152	.689	1.511	.884	1.25	.724	2.047	.795	•	•	•	•
	44	23	13	7	1.9	2	1.431	.869	2.109	.851	1.354	.85	1.796	.893	1.537	.898	2.581	.787	•	•	•	•
		20.3	11.7	6.3	1.8	2	1.267			.855	1.221			.877	1.359			.775				
E>C>R	24	8	7	1	7	1	1.74	1.015	2.755	.812	.927	.338	1.578	.622	1.673	.909	2.727	.777	•	•	•	•
	30	10	9	1	9	1	1.291	.636	1.909	.786	.932	.452	1.432	.765	1.287	.638	1.915	.785	•	•	•	•
	36	16	11	4	2.8	2	1.451	.797	2.314	.79	1.238	.649	1.879	.795	1.379	.679	2.15	.764	•	•	•	•
	39	18	10	7	1.4	2	1.863	1.209	2.51	.897	1.468	.877	2.15	.848	1.744	1.001	2.373	.861	•	•	•	•
	41	21	14	6	2.3	2	1.48	.815	2.325	.797	1.006	.489	1.822	.691	1.683	1.014	2.516	.843	•	•	•	•
	45	24	14	6	2.3	2	1.31	.753	1.835	.852	1.255	.742	1.828	.847	1.395	.818	2.325	.792	•	•	•	•
		16.2	10.8	4.2	4.1	1.7	1.523			.822	1.138			.751	1.527			.804				
E>C=R	32	11	10	0	•	1	1.247	.603	2.035	.739	.989	.611	1.532	.837	1.546	.892	2.719	.762	•	•	•	•
	35	15	12	1	12	1	1.263	.637	2.082	.748	1.029	.607	1.669	.805	1.433	.792	2.518	.749	•	•	•	•
	37	16	11	5	2.2	2	1.276	.759	1.821	.856	1.23	.717	1.811	.839	1.43	.821	2.462	.77	•	•	•	•
		14	11	2	7.1	1.2	1.262			.781	1.083			.827	1.47			.76				
		14.56	9.96	3.4	4.4	1.52	1.308	.67	1.976	.778	1.08	.583	1.639	.797	1.431	.772	2.359	.762	.777	.225	1.127	.614

Table 7.2a. Post-colonial houses. Basic general and syntactic data on main functions for all complexes

	RRA values of key functions minimal living					plus carrier						plus the street					plus kitchen linked to carrier				
house	Rec.	Eat.	Cook.	BDF	order	carr.	Rec.	Eat.	Cook.	BDF	order	st.	Rec.	Eat.	Cook.	order	carr.	Rec.	Eat.	Cook.	BDF
22	1.433	.86	2.006	.865	E>R>C	.981	.785	.589	1.178	.9	E>R>Ø>C	2.593	.902	1.353	2.142	R>E>C>S	•	•	•	•	
23	.86	1.146	•	•	E>R	.589	.689	.785	•	•	Ø>R>E	2.367	.676	1.465	•	R>E>S	.338	.564	.676	1.127	.887
24	1.595	1.015	1.305	.959	E>C>R	.338	.676	.564	.789	.977	Ø>E>R>C	2.364	1.091	.909	1.455	E>R>C>S	•	•	•	•	
25	1.015	.29	1.45	.615	E>R>C	.789	.676	.338	.902	.827	E>R>Ø>C	2.336	.754	.603	1.658	E>R>C>S	•	•	•	•	
26	1.691	.902	2.255	.846	E>R>C	.636	1.182	.727	1.273	.934	Ø>E>R>C	1.636	1.454	.909	2.182	E>R>S>C	•	•	•	•	
27	1.578	.676	2.029	.789	E>R>C	.636	1.091	.545	1.273	.863	E>Ø>R>C	1.545	1.364	.727	1.999	E>R>S>C	•	•	•	•	
28	1.636	1.455	2.182	.963	E>R>C	1.13	1.281	1.206	1.733	.967	Ø>E>R>C	2.639	1.155	1.375	1.98	R>E>C>S	•	•	•	•	
29	1.091	.636	1.727	.811	E>R>C	.678	.603	.527	1.206	.823	E>R>Ø>C	1.978	.83	.766	1.787	E>R>C>S	•	•	•	•	
30	1	.636	.818	.959	E>C>R	.452	.603	.527	.678	.987	Ø>E>R>C	1.915	.766	.638	.894	E>R>C>S	•	•	•	•	
31	.98	.603	1.055	.934	E>R>C	.447	.893	.511	.702	.938	Ø>E>C>R	2.804	.977	.935	1.529	E>R>C>S	•	•	•	•	
32	1.356	.603	1.356	.859	E>R=C	.638	.894	.511	.894	.927	E>Ø>R=C	2.719	1.02	.935	1.699	E>R>C>S	•	•	•	•	
33	1.021	.511	1.34	.832	E>R>C	.88	.77	.495	.88	.934	E>R>Ø=C	2.542	.986	.683	1.631	E>R>C>S	•	•	•	•	
34	1.404	.511	1.659	.76	E>R>C	.715	1.155	.44	1.21	.803	E>Ø>R>C	2.167	1.19	.722	1.742	E>R>C>S	•	•	•	•	
35	1.147	.765	1.147	.96	E>R=C	.683	.759	.721	.759	.999	Ø>E>R=C	2.518	.934	.792	1.387	E>R>C>S	•	•	•	•	
36	1.783	.797	1.328	.878	E>C>R	.922	1.366	.649	1.196	.891	E>Ø>C>R	1.952	1.585	.679	1.245	E>C>R>S	•	•	•	•	
37	1.48	.986	1.48	.959	E>R=C	1.298	1.366	.888	1.298	.959	E>Ø=C>R	2.462	1.273	.905	1.443	E>R>C>S	•	•	•	•	
38	1.162	1.162	1.572	.973	E=R>C	1.333	1.023	1.085	1.364	.98	R>E>Ø>C	2.208	.961	1.039	1.507	R>E>C>S	•	•	•	•	
39	1.705	1.271	1.643	.98	E>C>R	.99	1.358	1.16	1.217	.995	Ø>E>C>R	2.23	1.462	1.127	1.558	E>R>C>S	•	•	•	•	
40	1.247	.779	1.559	.908	E>R>C	.983	1.127	.671	1.462	.886	E>Ø>R>C	2.163	1.12	.695	1.507	E>R>C>S	•	•	•	•	
41	1.822	1.151	1.678	.955	E>C>R	.489	.756	.711	.889	.989	Ø>E>R>C	2.932	1.484	1.122	1.81	E>R>C>S	•	•	•	•	
42	1.007	1.199	1.39	.979	R>E>C	1.222	.978	1.133	1.289	.984	R>E>Ø>C	2.047	.972	1.137	1.386	R>E>C>S	•	•	•	•	
43	1.378	1.111	1.6	.973	E>R>C	.951	.889	1.013	1.199	.981	R>Ø>E>C	2.028	1.217	1.101	1.603	E>R>C>S	•	•	•	•	
44	1.241	1.427	2.109	.934	R>E>C	1.313	1.159	1.294	1.603	.977	R>E>Ø>C	2.581	1.186	1.395	2.052	R>E>C>S	•	•	•	•	
45	1.526	1.024	1.333	.968	E>C>R	1.195	1.303	.941	1.195	.978	E>Ø>C>R	2.325	1.363	.946	1.299	E>C>R>S	•	•	•	•	
46	1.449	1.076	1.564	.97	E>R>C	1.389	1.28	1.035	2.056	.894	E>R>Ø>C	2.319	1.32	.999	2.109	E>R>C>S	•	•	•	•	
	1.344	.904	1.566	.901		.867	.986	.763	1.177	.933		2.295	1.122	.958	1.65		.338	.564	.676	1.127	.887

Table 7.2b. Post-colonial houses. Basic general and syntactic data on main functions for each genotype (all complexes)

	RRA values of key functions minimal living					plus carrier						plus the street					plus kitchen linked to carrier				
house	Rec.	Eat.	Cook.	BDF	order	carr.	Rec.	Eat.	Cook.	BDF	order	st.	Rec.	Eat.	Cook.	order	carr.	Rec.	Eat.	Cook.	BDF
22	1.433	.86	2.006	.865	E>R>C	.981	.785	.589	1.178	.9	E>R>Ø>C	2.593	.902	1.353	2.142	R>E>C>S	•	•	•	•	
25	1.015	.29	1.45	.615	E>R>C	.789	.676	.338	.902	.827	E>R>Ø>C	2.336	.754	.603	1.658	E>R>C>S	•	•	•	•	
26	1.691	.902	2.255	.846	E>R>C	.636	1.182	.727	1.273	.934	Ø>E>R>C	1.636	1.454	.909	2.182	E>R>S>C	•	•	•	•	
27	1.578	.676	2.029	.789	E>R>C	.636	1.091	.545	1.273	.863	E>Ø>R>C	1.545	1.364	.727	1.999	E>R>S>C	•	•	•	•	
28	1.636	1.455	2.182	.963	E>R>C	1.13	1.281	1.206	1.733	.967	Ø>E>R>C	2.639	1.155	1.375	1.98	R>E>C>S	•	•	•	•	
29	1.091	.636	1.727	.811	E>R>C	.678	.603	.527	1.206	.823	E>R>Ø>C	1.978	.83	.766	1.787	E>R>C>S	•	•	•	•	
31	.98	.603	1.055	.934	E>R>C	.447	.893	.511	.702	.938	Ø>E>C>R	2.804	.977	.935	1.529	E>R>C>S	•	•	•	•	
33	1.021	.511	1.34	.832	E>R>C	.88	.77	.495	.88	.934	E>R>Ø=C	2.542	.986	.683	1.631	E>R>C>S	•	•	•	•	
34	1.404	.511	1.659	.76	E>R>C	.715	1.155	.44	1.21	.803	E>Ø>R>C	2.167	1.19	.722	1.742	E>R>C>S	•	•	•	•	
40	1.247	.779	1.559	.908	E>R>C	.983	1.127	.671	1.462	.886	E>Ø>R>C	2.163	1.12	.695	1.507	E>R>C>S	•	•	•	•	
43	1.378	1.111	1.6	.973	E>R>C	.951	.889	1.013	1.199	.981	R>Ø>E>C	2.028	1.217	1.101	1.603	E>R>C>S	•	•	•	•	
46	1.449	1.076	1.564	.97	E>R>C	1.389	1.28	1.035	2.056	.894	E>R>Ø>C	2.319	1.32	.999	2.109	E>R>C>S	•	•	•	•	
23	.86	1.146	•	•	E>R	.589	.689	.785	•	•	Ø>R>E	2.367	.676	1.465	•	R>E>S	.338	.564	.676	1.127	.887
	1.291	.812	1.702	.855		.831	.955	.683	1.256	.896		2.24	1.073	.949	1.822		.338	.564	.676	1.127	.887
38	1.162	1.162	1.572	.973	E=R>C	1.333	1.023	1.085	1.364	.98	R>E>Ø>C	2.208	.961	1.039	1.507	R>E>C>S	•	•	•	•	
42	1.007	1.199	1.39	.979	R>E>C	1.222	.978	1.133	1.289	.984	R>E>Ø>C	2.047	.972	1.137	1.386	R>E>C>S	•	•	•	•	
44	1.241	1.427	2.109	.934	R>E>C	1.313	1.159	1.294	1.603	.977	R>E>Ø>C	2.581	1.186	1.395	2.052	R>E>C>S	•	•	•	•	
	1.136	1.262	1.69	.962		1.289	1.053	1.171	1.419	.98		2.279	1.04	1.19	1.648						
24	1.595	1.015	1.305	.959	E>C>R	.338	.676	.564	.789	.977	Ø>E>R>C	2.364	1.091	.909	1.455	E>R>C>S	•	•	•	•	
30	1	.636	.818	.959	E>C>R	.452	.603	.527	.678	.987	Ø>E>R>C	1.915	.766	.638	.894	E>R>C>S	•	•	•	•	
36	1.783	.797	1.328	.878	E>C>R	.922	1.366	.649	1.196	.891	E>Ø>C>R	1.952	1.585	.679	1.245	E>C>R>S	•	•	•	•	
39	1.705	1.271	1.643	.98	E>C>R	.99	1.358	1.16	1.217	.995	Ø>E>C>R	2.23	1.462	1.127	1.558	E>R>C>S	•	•	•	•	
41	1.822	1.151	1.678	.955	E>C>R	.489	.756	.711	.889	.989	Ø>E>R>C	2.932	1.484	1.122	1.81	E>R>C>S	•	•	•	•	
45	1.526	1.024	1.333	.968	E>C>R	1.195	1.303	.941	1.195	.978	E>Ø>C>R	2.325	1.363	.946	1.299	E>C>R>S	•	•	•	•	
	1.572	.982	1.351	.95		.731	1.01	.759	.994	.969		2.286	1.292	.903	1.377						
32	1.356	.603	1.356	.859	E>R=C	.638	.894	.511	.894	.927	E>Ø>R=C	2.719	1.02	.935	1.699	E>R>C>S	•	•	•	•	
35	1.147	.765	1.147	.96	E>R=C	.683	.759	.721	.759	.999	Ø>E>R=C	2.518	.934	.792	1.387	E>R>C>S	•	•	•	•	
37	1.48	.986	1.48	.959	E>R=C	1.298	1.366	.888	1.298	.959	E>Ø=C>R	2.462	1.273	.905	1.443	E>R>C>S	•	•	•	•	
	1.328	.785	1.328	.926		.873	1.006	.706	.983	.961		2.566	1.075	.877	1.51						
	1.344	.904	1.566	.901		.867	.986	.763	1.177	.933		2.295	1.122	.958	1.65		.338	.564	.676	1.127	.887

Table 7.3. Post-colonial houses. RRA values for all interior spaces (minimal living complex)

House 22

corr.	s.jantar	s.visita	quarto	quarto	cozinha
3 >	4 >	5 =	2 =	1 >	6
.287	.86	1.433			2.006

House 23

corr.	s.visita	quarto	s.jantar	quarto	quarto
5 >	4 =	1 >	6 =	2 =	3
0	.86		1.146		

House 24

s.jantar	copa	cozinha	s.visita	T	quarto	quarto	wc/b
4 =	5 >	6 >	8 >	7 =	1 >	3 >	2
1.015		1.305	1.595	1.885	1	2.465	2.755

House 25

s.jantar	copa	quarto	s.visita	quarto	quarto	wc/b	cozinha
4 >	3 >	8 >	7 =	5 >	2 >	1 =	6
.29	.58	.87	1.015		1.16	1.45	

House 26

T	s.jantar	T	copa	quarto	s.visita	quarto	cozinha	quarto
7 >	4 >	9 >	3 >	5 >	8 =	2 >	1 >	6
.789	.902	1.127	1.466	1.578	1.691		2.255	2.48

House 27

corr.	s.jantar	quarto	quarto	entr.	quarto	copa	s.visita	cozinha
3 >	7 >	4 >	6 =	9 >	1 =	5 >	8 >	2
.451	.676	.902	1.015		1.24		1.578	2.029

House 28

landing	St.	T	wc/b	s.jantar	quarto	quarto	quarto	s.visita	cozinha
5 =	6 >	8 >	1 =	7 =	3 =	4 =	2 >	10 >	9
.727		.909	1.455					1.636	2.182

House 29

corr.	s.jantar	copa	quarto	s.visita	quarto	quarto	quarto	wc/b	cozinha
8 >	9 >	7 =	3 >	10 =	6 =	4 =	5 >	1 =	2
.455	.636	1		1.091				1.727	

House 30

s.jantar	cozinha	s.visita	quarto	T	quarto	quarto	quarto	quarto	wc/b
8 >	5 >	9 >	3 >	6 >	4 >	7 >	10 >	2 =	1
.636	.818	1	1.091	1.182	1.364	1.455	1.545	1.909	

Key to abbreviations: T- transition space; St - stairs; s. - sala; corr - corridor; entr. - entrance lobby; lvtry. - lavatory.

Table 7.3. Post-colonial houses. RRA values for all interior spaces (minimal living complex)

House 31

s.jantar	copa	s.visita	cozinha	quarto	quarto	quarto	quarto	entr.	larder	wc/b
10 >	6 >	9 >	7 =	4 >	5 >	1 >	8 >	11 >	2 =	3
.603	.678	.98	1.055		1.13	1.206	1.432	1.507	1.733	

House 32

s.jantar	copa	gabinete	quarto	quarto	quarto	s.visita	cozinha	wc/b	toilette	larder
10 >	6 =	9 >	4 >	3 >	5 >	11 =	7 >	1 >	8 >	2
.603	.829		.98	1.206	1.281	1.356		1.507	1.733	2.035

House 33

corr.	s.jantar	copa	quarto	s.visita	quarto	wc/b	s.espera	quarto	quarto	larder	cozinha
6 >	10 >	4 >	7 >	11 >	9 =	3 =	12 >	5 >	2 =	1 =	8
.447	.511	.702	.766	1.021	1.085			1.149	1.34		

House 34

corr.	s.jantar	quarto	quarto	T	quarto	copa	T	quarto	s.visita	wc/b	cozinha
10 >	11 >	6 >	3 >	12 =	4 >	8 =	7 >	5 >	9 >	1 =	2
.447	.511	.766	.893	.957		1.021		1.085	1.404	1.659	

House 35

T	copa	s.jantar	s.visita	cozinha	quarto	quarto	quarto	quarto	wc	bath	gabinete	larder	quarto	balcony
5 >	12 =	9 >	14 =	15 =	3 >	1 =	10 >	4 =	6 =	7 >	8 >	13 =	11 >	2
.637	.765		1.147			1.19		1.317			1.529	1.699		2.082

House 36

s.jantar	St.	almoço	landing	T	cozinha	quarto	study	quarto	quarto	quarto	wc/b	T	s.visita	balcony	wc/b
15 >	11 >	12 >	6 >	10 >	13 >	8 =	3 =	7 >	2 =	4 =	5 >	16 =	14 >	1 >	9
.797	.873	.948	1.024	1.252	1.328	1.48			1.555			1.783		2.011	2.314

House 37

St.	T	landing	T	s.jantar	quarto	quarto	quarto	wc/b	cozinha	entr.	s.visita	larder	wc/b	terrace	balcony
8 =	11 >	7 >	12 >	15 >	3 =	4 >	5 >	6 >	13 =	16 =	14 =	9 =	10 >	1 >	2
.759		.835	.948	.986	1.252		1.29	1.366	1.48					1.745	1.821

House 38

St.	landing	T	T	T	quarto	quarto	s.visita	s.jantar	quarto	quarto	T	cozinha	wc/b	balcony	wc	terrace
11 >	8 =	14 >	7 =	12 >	4 =	5 >	17 =	13 >	10 =	6 =	15 >	16 =	2 =	1 =	9 =	3
.649	.683		1.059		1.127		1.162		1.196			1.572				

Key to abbreviations: T- transition space; St - stairs; s. - sala; corr - corridor; entr. - entrance lobby; lvtry. - lavatory.

Table 7.3. Post-colonial houses. RRA values for all interior spaces (minimal living complex)

House 39

entr.	s.jantar	T	St.	T	T	cozinha	s.visita	copa	T	T	wc/b	quarto	larder	quarto	quarto	quarto	wc/b
18 >	15 =	16 >	11 =	10 >	7 >	13 >	17 >	14 >	4 >	8 >	5 =	3 >	9 >	2 =	1 >	12 =	6
1.209		1.271	1.395		1.581	1.643	1.705	1.891	1.952	2.014	2.076		2.138	2.448		2.51	

House 40

s.jantar	St.	T	landing	copa	store	store	s.visita	T	quarto	quarto	?	wc/b	quarto	cozinha	larder	T	T	store	wc/b
10 >	9 >	14 =	7 >	13 >	20 =	19 =	11 >	5 >	4 =	3 >	8 =	15 =	6 >	12 >	16 >	2 >	18 =	17 >	1
.779	.831	.935		1.195	1.247			1.299	1.377		1.403			1.559	1.663	1.715	2.026		2.182

House 41

copa	T	T	?	s.jantar	T	store	wc	quarto	wc/b	T	St.	?	cozinha	s.visita	quarto	quarto	quarto	T	gabinete	?
14 >	15 >	13 >	21 >	19 >	3 >	5 >	6 =	7 >	4 >	10 >	18 >	17 >	12 >	20 >	9 =	11 >	2 =	8 >	16 >	1
.815	.887	.935	1.103	1.151	1.223	1.271	1.343		1.39	1.414	1.462	1.51	1.678	1.822	1.846		1.87		1.966	2.325

House 42

St.	landing	T	T	T	s.visita	quarto	quarto	quarto	quarto	wc/b	quarto	s.jantar	entr.	cozinha	gabinete	balcony	balcony	balcony	copa	balcony
11 >	9 =	14 >	18 >	19 >	13 >	7 =	6 >	5 =	8 >	3 =	4 >	15 >	20 =	16 =	1 >	10 >	2 =	21 >	17 >	12
.695	.719		.935	.983	1.007	1.055		1.103		1.175		1.199	1.39			1.462	1.51		1.606	1.654

House 43

T	T	St.	s.jantar	landing	copa	s.visita	quarto	quarto	cozinha	quarto	quarto	quarto	quarto	quarto	bath	wc/b	T	balcony	quarto	larder	quarto
19 >	16 >	8 =	18 >	7 >	14 >	22 >	20 >	17 >	15 =	12 >	4 >	5 =	3 >	2 =	6 >	11 >	13 >	21 >	1 >	10 =	9
1.022	1.067	1.111		1.244	1.289	1.378	1.422	1.467	1.6		1.622	1.644		1.689		1.733	1.911	2.067	2.089	2.355	

House 44

landing	St.	T	quarto	T	T	T	s.visita	quarto	copa	quarto	T	varanda	s.jantar	quarto	bath	wc	T	terrace	balcony	cozinha	wc	larder
12 >	17 >	21 >	10 >	9 >	19 >	11 >	18 >	5 >	14 >	7 =	23 >	6 >	13 >	8 >	4 >	3 >	20 >	1 >	2 >	22 =	15 =	16
.869	.889	.951	1.075	1.117	1.137	1.179	1.241	1.324	1.365	1.386		1.406	1.427	1.489	1.551	1.551	1.675	1.758	1.82	2.109		

House 45

landing	St.	T	copa	T	s.jantar	quarto	quarto	hall	T	cozinha	lvtry.	espera	quarto	quarto	store	quarto	terrace	s.visita	wc/b	b.lobby	larder	wc	terrace
12 =	14 >	17 >	18 >	9 =	21 >	11 >	10 >	20 =	8 >	19 >	15 >	23 =	3 >	4 =	5 >	6 >	7 >	22 >	2 >	24 =	16 >	13 >	1
.753		.792	.985	1.024		1.101	1.12	1.14		1.333	1.371	1.41		1.449	1.449	1.468	1.487	1.526	1.565	1.758		1.796	1.835

House 46

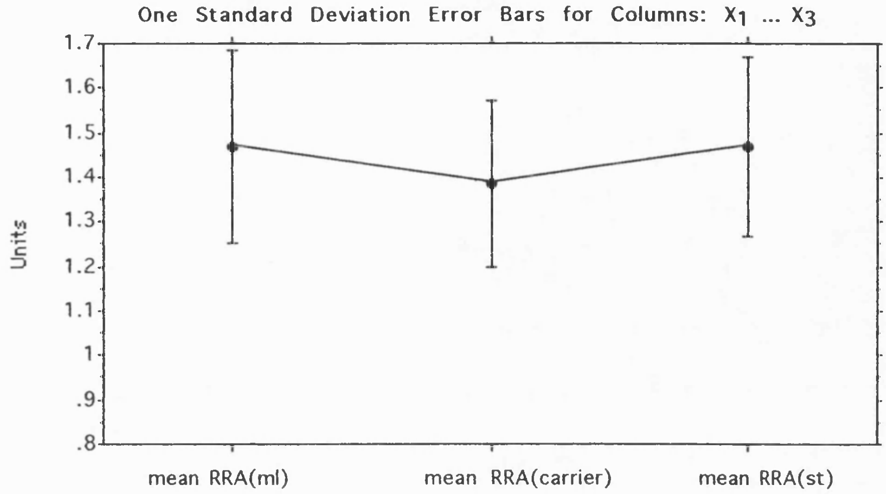
T	St.	T	s.jantar	T	copa	quarto	varanda	wc/b	T	espera	s.visita	quarto	quarto	quarto	T	cozinha	quarto	varanda	T	T	lobby	terrace	wc/b	quarto	varanda	wc/b	quarto	larder
16 >	20 >	14 >	25 >	12 >	23 >	11 >	10 =	13 >	26 >	24 =	29 >	8 >	9 =	7 >	19 >	27 >	5 >	4 >	6 >	22 >	28 >	3 >	15 =	21 >	1 >	2 >	18 =	17
1.019	1.033	1.062	1.076	1.133	1.262	1.391	1.406		1.435	1.449		1.463	1.492		1.506	1.564	1.721	1.736	1.75	1.808	1.822	1.851	1.894		2.123	2.137	2.195	

Key to abbreviations: T- transition space; St - stairs; s. - sala; corr - corridor; entr. - entrance lobby; lvtry. - lavatory.

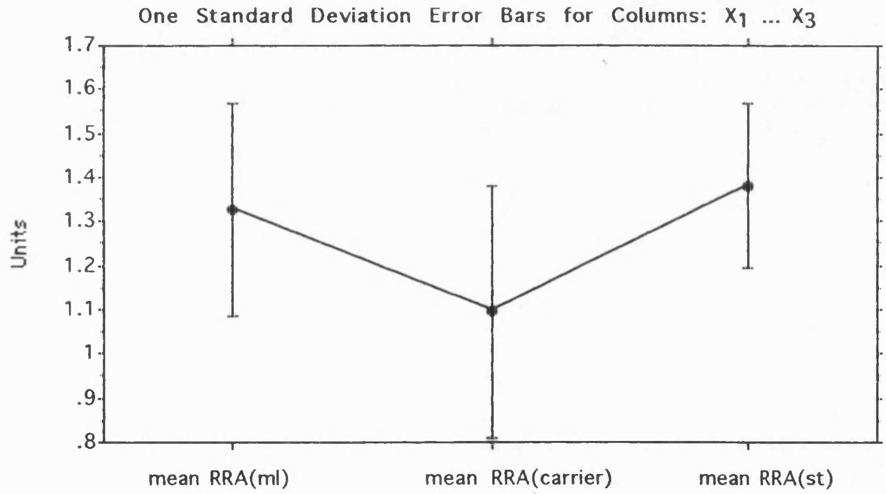
CHAPTER 8

Figure 8a. Average mean RRA values for the minimal living and reworked complexes

British selected sample



Colonial houses



Eclectic houses

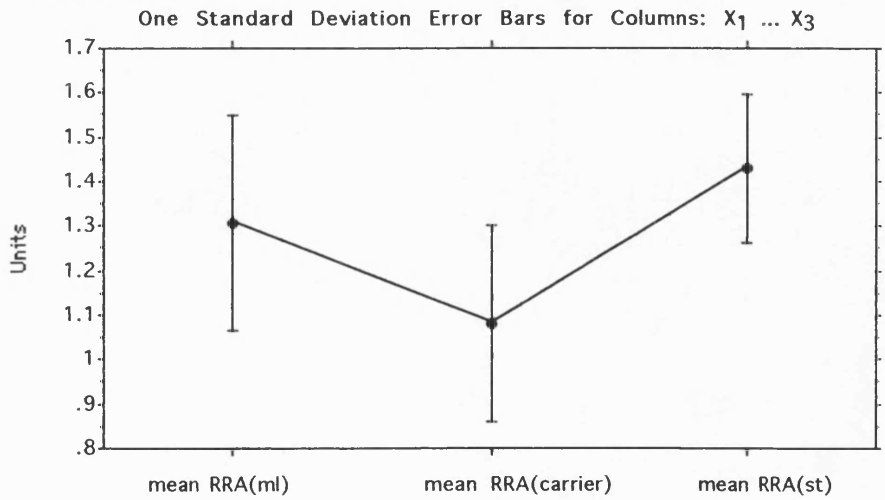
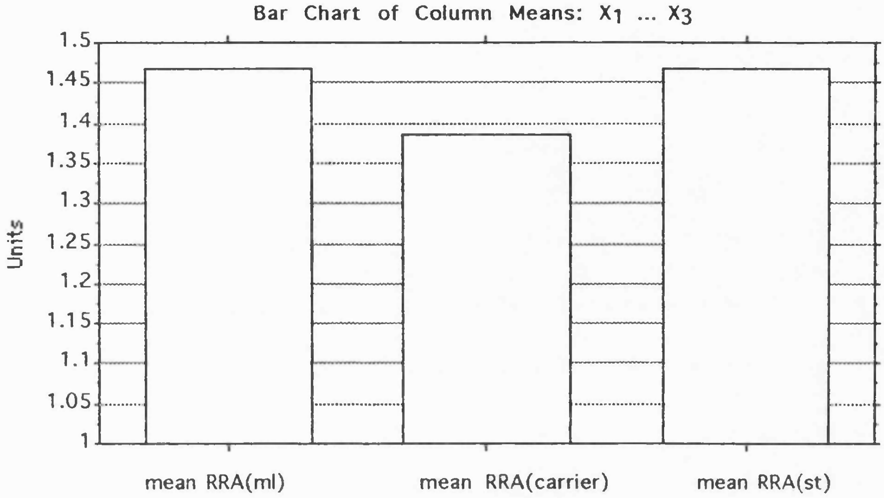
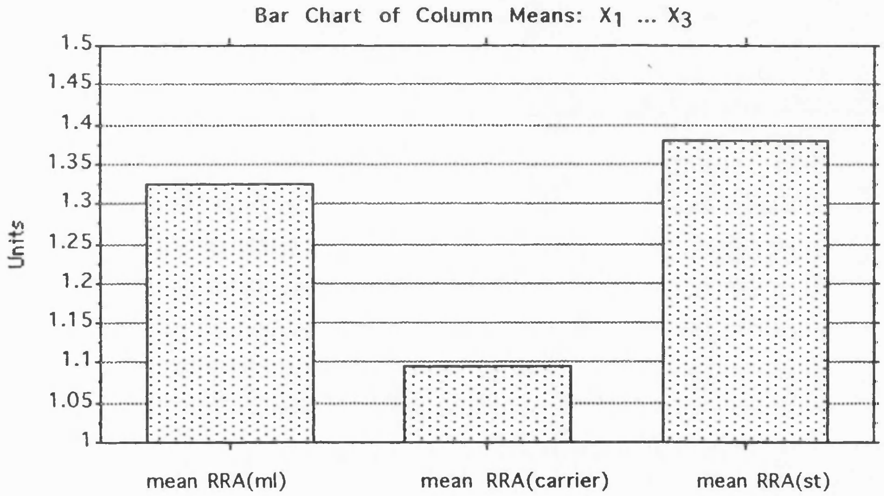


Figure 8b. Average mean RRA values for the minimal living and reworked complexes

British selected sample



Colonial houses



Eclectic houses

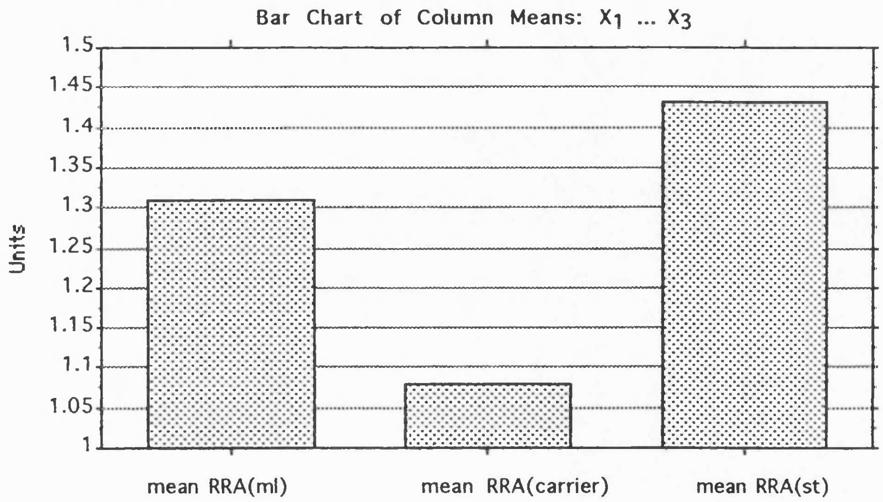
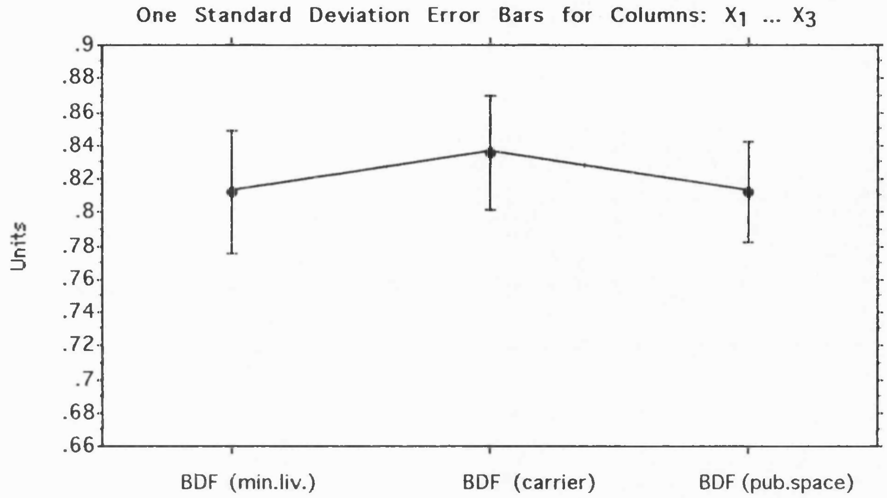
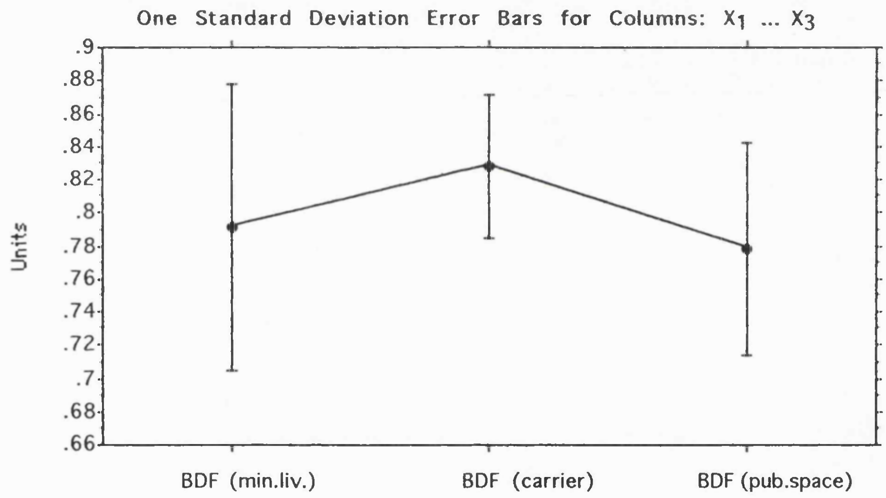


Figure 8.1a. Average BDF values for the minimal living and reworked complexes

British selected sample



Colonial houses



Eclectic houses

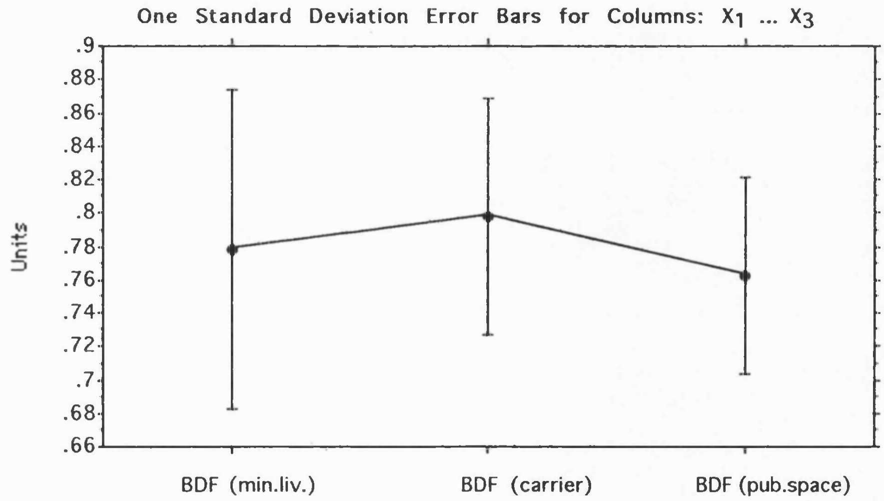
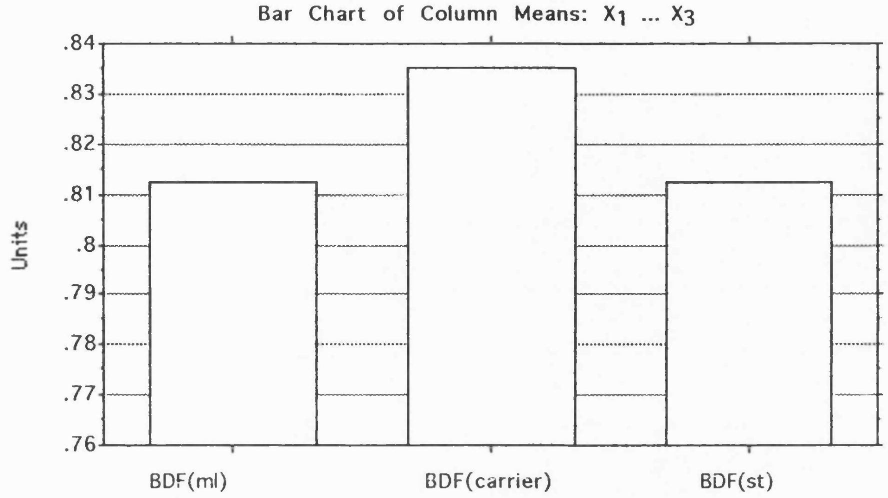
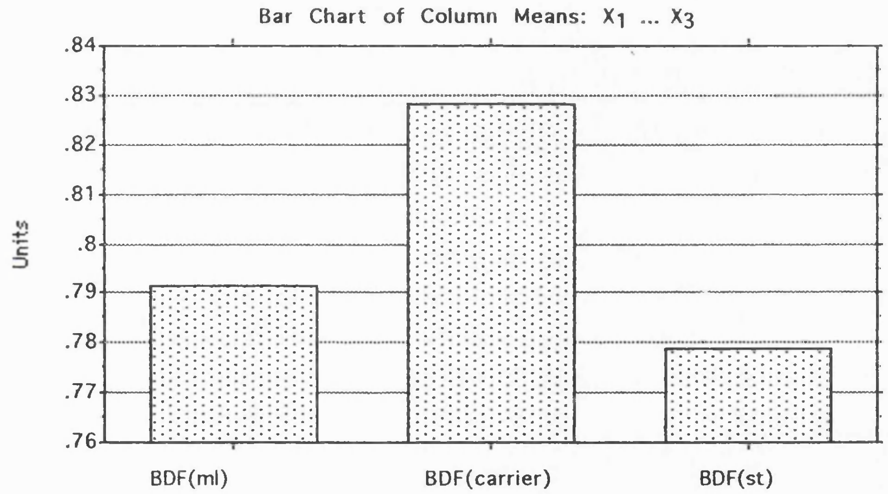


Figure 8.1b. Average BDF values for the minimal living and reworked complexes

British selected sample



Colonial houses



Eclectic houses

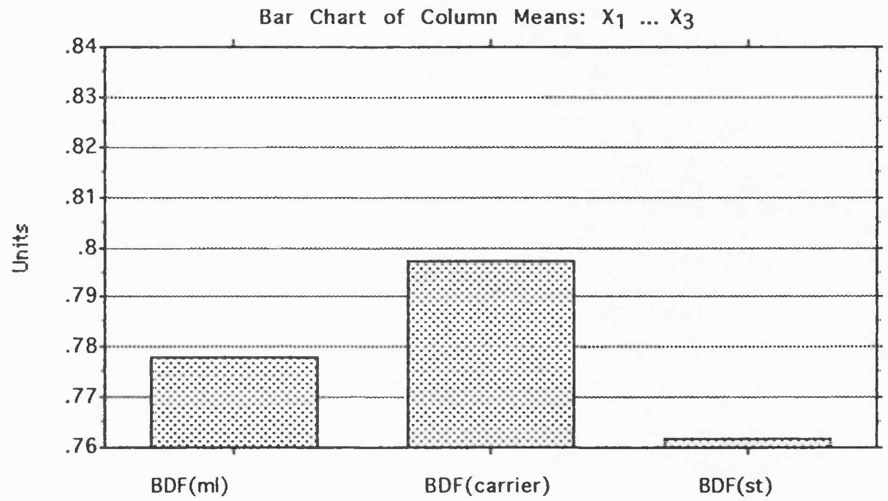


Figure 8.2. Correlation between mean RRA and BDF values

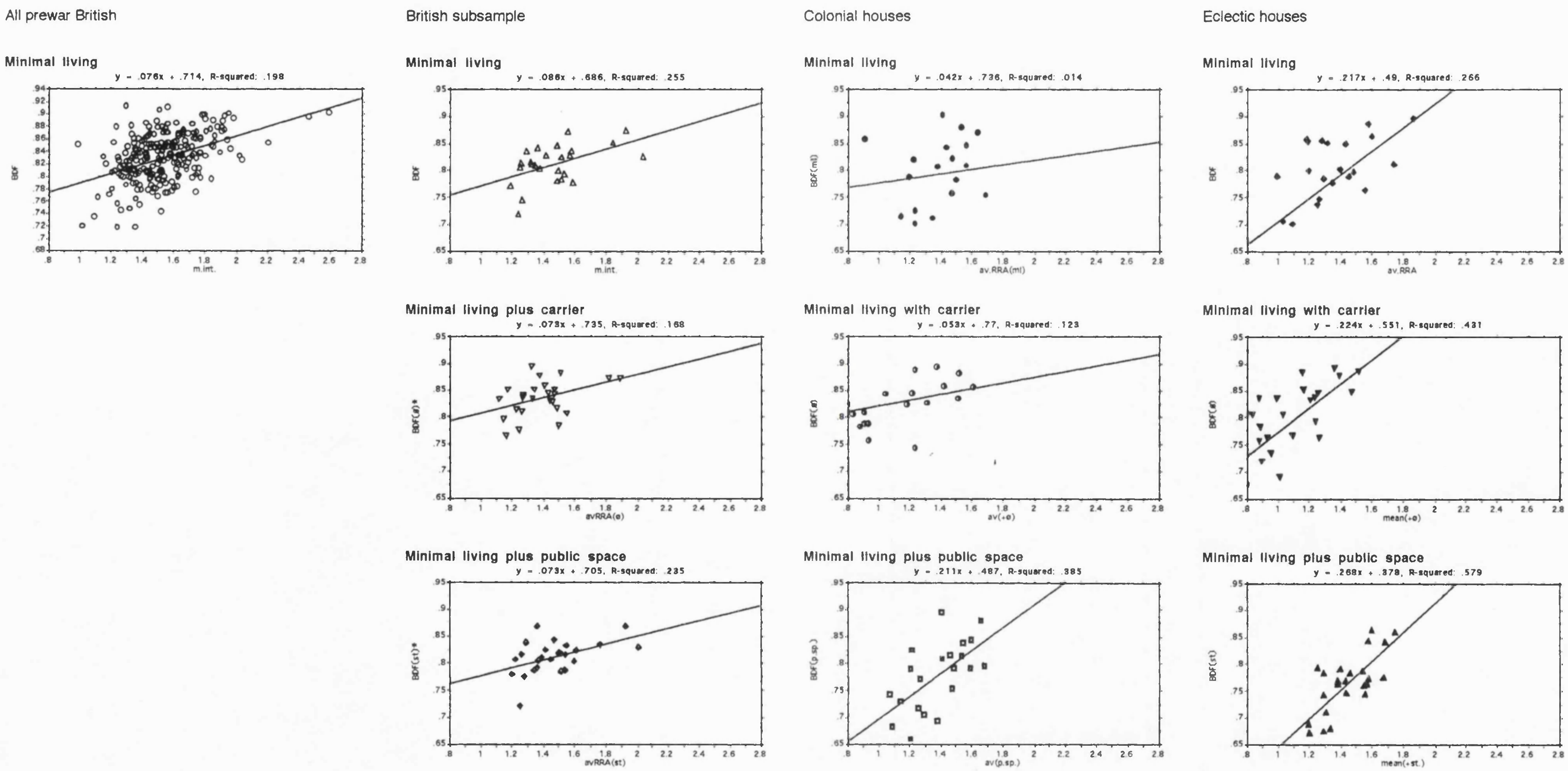
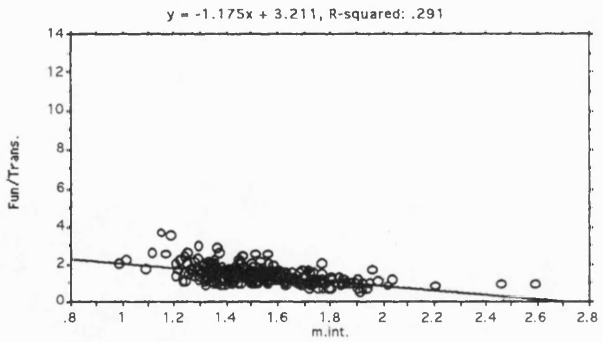
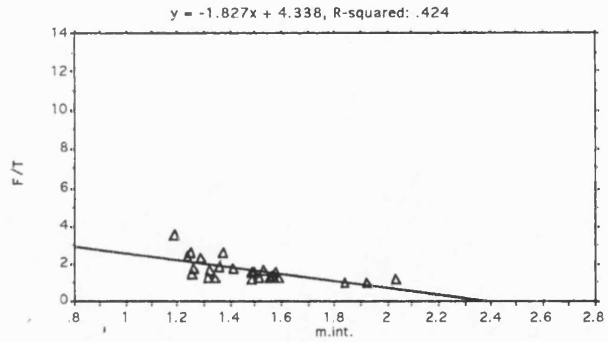


Figure 8.3. Correlation between mean RRA and the function/transition space ratio

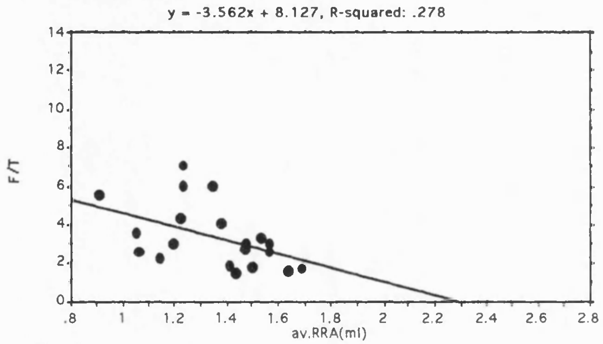
All prewar British



British subsample



Colonial houses



Eclectic houses

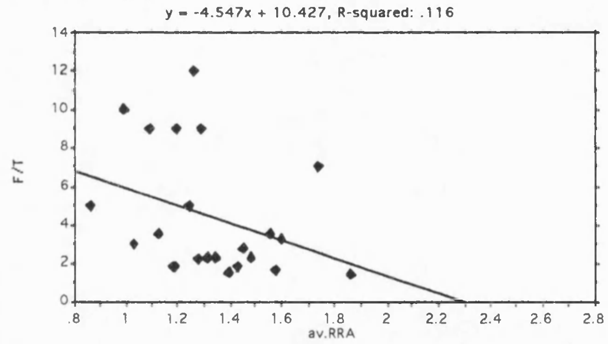


Figure 8.4a RRA values for the three principal day functions for the minimal living and reworked complexes

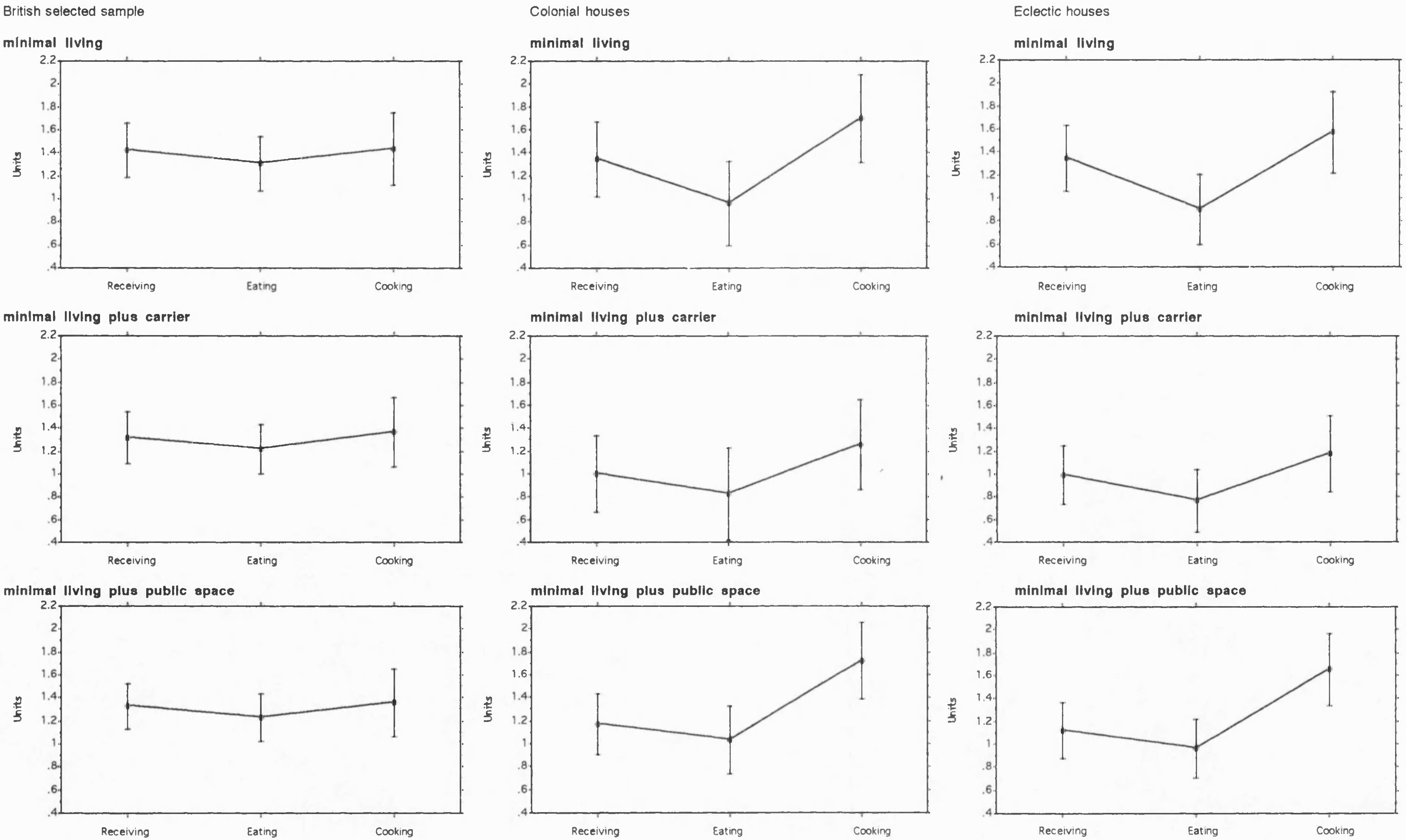


Figure 8.4b. Line charts of RRA values for the three principal day functions, the carrier and the public space for the minimal living and reworked complexes

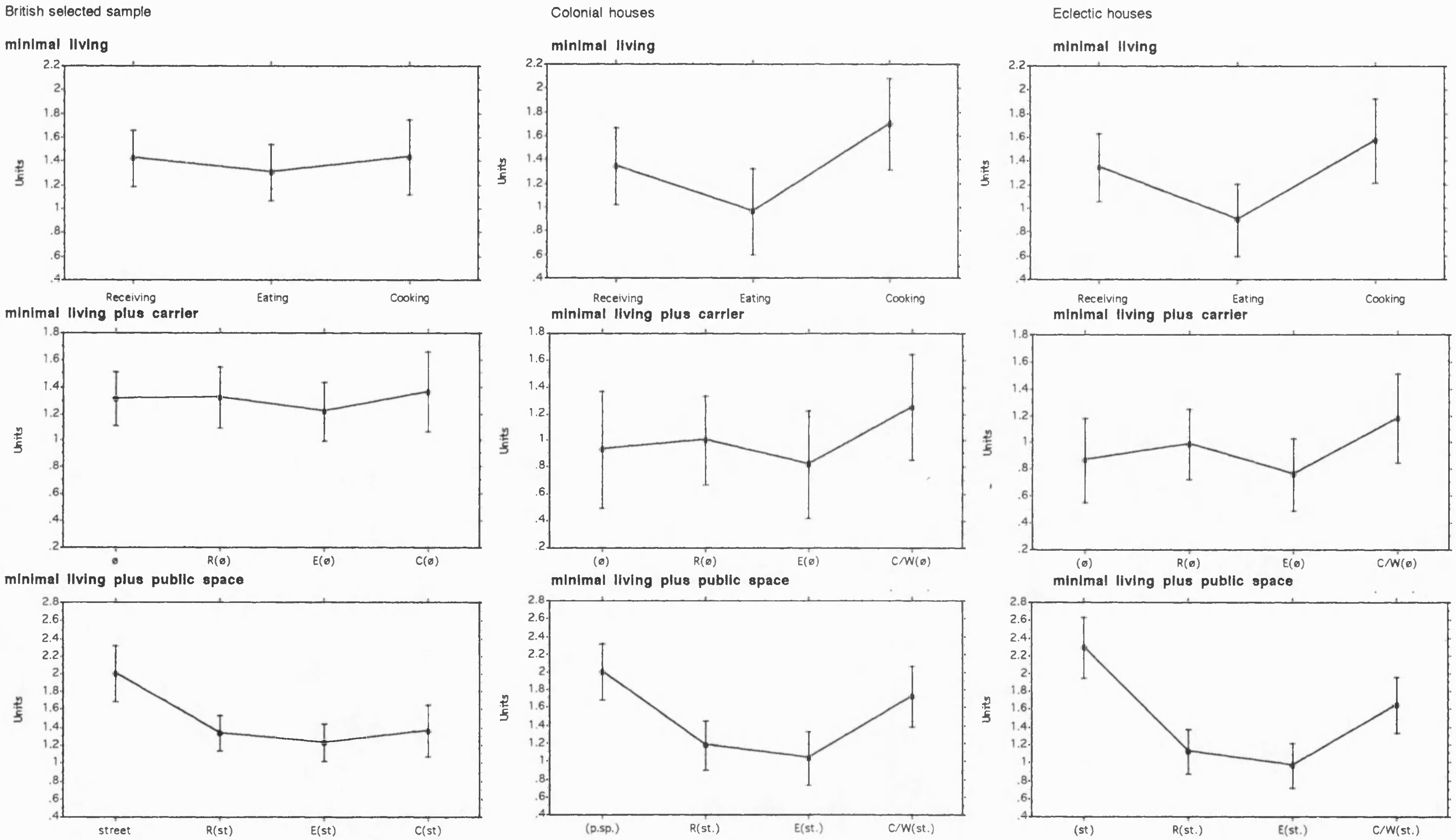
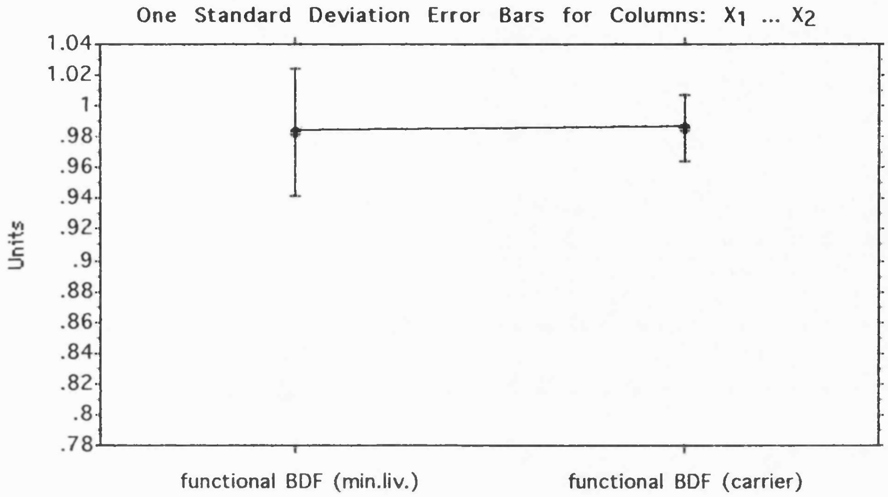
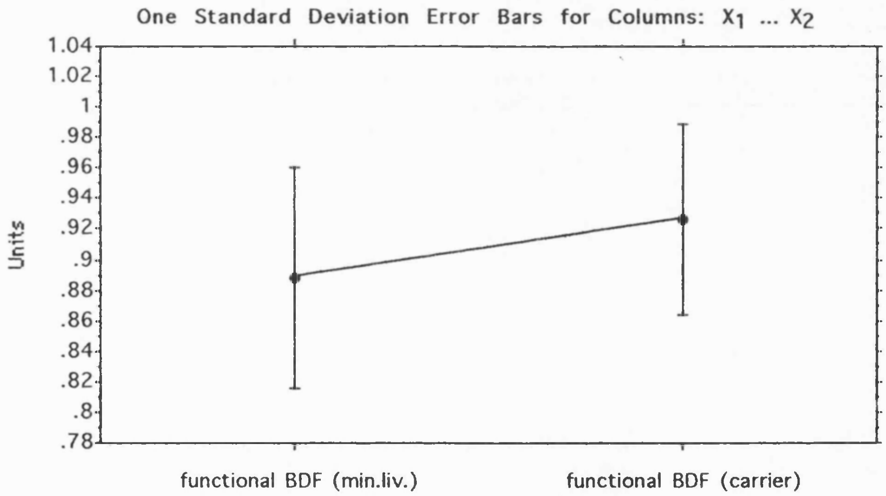


Figure 8.5a. Average BDF values for the minimal living and reworked complexes

British selected sample



Colonial houses



Eclectic houses

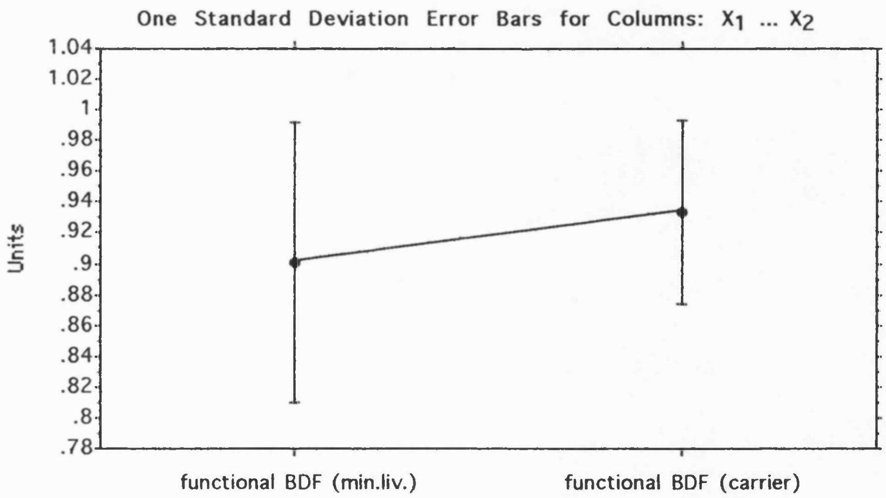
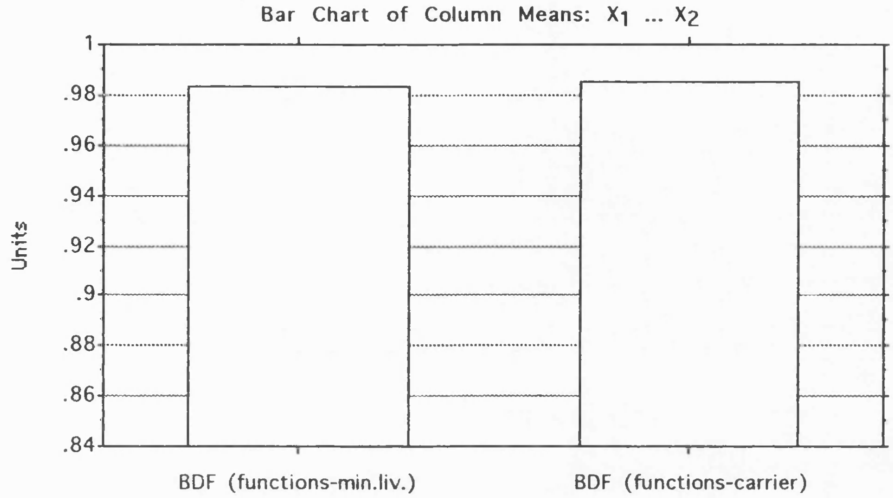
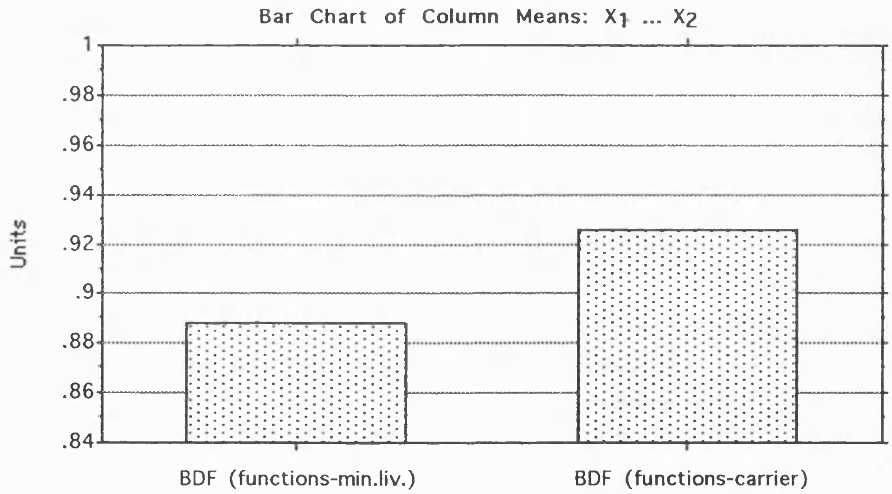


Figure 8.5b. Average BDF values for the minimal living and reworked complexes

British selected sample



Colonial houses



Eclectic houses

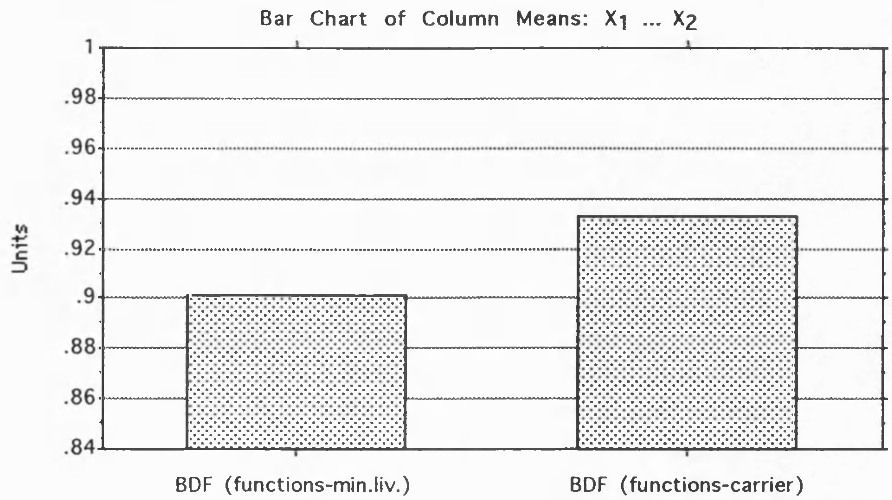


Figure 8.6. Frequency distribution of inequality genotypes

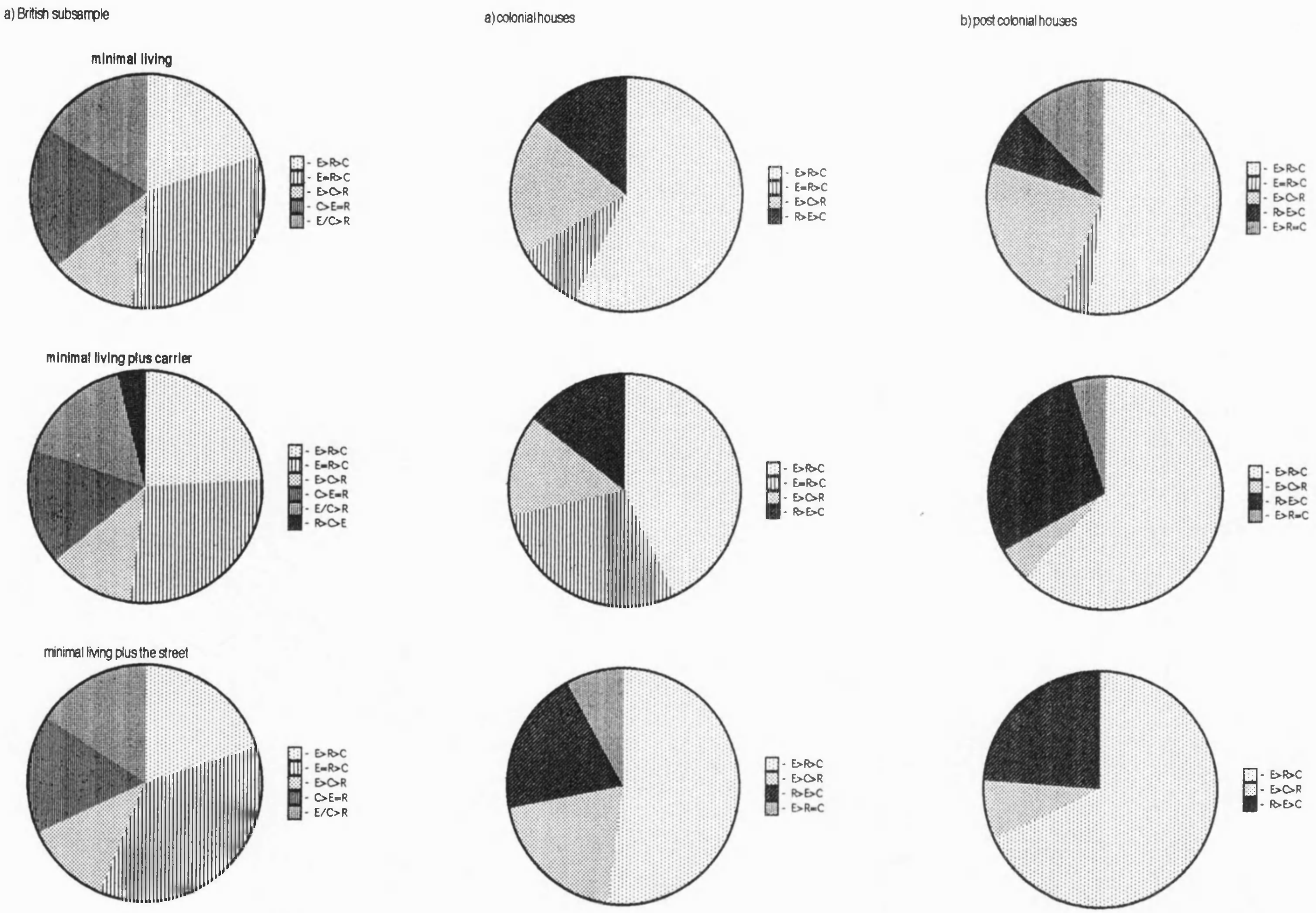


Table 8. Average mean RRA values of the minimal living and reworked complexes

a) All prewar British

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.536	.219	.014	.048	14.254	244
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
.987	2.594	1.607	374.775	587.288	0

b) British subsample (minimal living)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.468	.214	.043	.046	14.593	25
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
1.186	2.035	.849	36.707	54.998	0

British subsample (minimal living plus carrier)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.385	.189	.038	.036	13.646	25
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
1.116	1.892	.776	34.621	48.802	0

British subsample (minimal living plus public space)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.467	.204	.041	.041	13.886	25
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
1.198	2.007	.809	36.674	54.795	0

c) Colonial houses (minimal living)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.324	.243	.053	.059	18.363	21
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
.764	1.687	.923	27.806	38	0

Colonial houses (minimal living plus carrier)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.095	.288	.063	.083	26.252	21
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
.673	1.608	.935	23.005	26.856	0

Colonial houses (minimal living plus public space)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.379	.188	.041	.035	13.644	21
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
1.069	1.683	.614	28.952	40.624	0

d) Eclectic houses (minimal living)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.308	.242	.048	.059	18.509	25
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
.86	1.863	1.003	32.698	44.173	0

Eclectic houses (minimal living plus carrier)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.08	.222	.044	.049	20.537	25
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
.673	1.513	.84	26.995	30.331	0

Eclectic houses (minimal living plus public space)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.431	.168	.034	.028	11.723	25
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
1.127	1.744	.617	35.786	51.901	0

Table 8.1. Average BDF values of the minimal living and reworked complexes

a) All prewar British

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.831	.038	.002	.001	4.518	244
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.718	.913	.195	202.695	168.724	0

b) British subsample

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.812	.036	.007	.001	4.491	25
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.719	.875	.157	20.309	16.531	0

British subsample (minimal living plus carrier)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.835	.033	.007	.001	4.008	25
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.766	.896	.13	20.882	17.47	0

British subsample (minimal living plus public space)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.812	.031	.006	.001	3.768	25
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.722	.868	.146	20.308	16.518	0

c) Colonial houses (minimal living)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.791	.087	.019	.008	11.014	21
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing
.614	.966	.352	16.62	13.306	0

Colonial houses (minimal living plus carrier)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.828	.044	.01	.002	5.275	21
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.743	.906	.163	17.39	14.439	0

Colonial houses (minimal living plus public space)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.779	.064	.014	.004	8.223	21
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing:
.66	.895	.235	16.351	12.814	0

d) Eclectic houses (minimal living)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.778	.096	.02	.009	12.318	24
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing
.493	.897	.405	18.67	14.735	1

Eclectic houses (minimalliving plus carrier)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.762	.059	.012	.003	7.764	25
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing
.636	.864	.228	19.043	14.59	0

Eclectic houses (minimalliving plus public space)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.762	.059	.012	.003	7.764	25
Minimum:	Maximum:	Range:	Sum:	Sum Squared:	# Missing
.636	.864	.228	19.043	14.59	0

All prewar British

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.406	.477	.031	.227	33.897	244
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
.548	3.667	3.118	343.159	537.841	0

British subsample

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.656	.601	.12	.361	36.309	25
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
1	3.5	2.5	41.393	77.211	0

Colonial houses

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.411	1.643	.358	2.698	48.164	21
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
1.429	7	5.571	71.621	298.227	0

Eclectic houses

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.403	3.232	.674	10.447	73.408	23
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
1.429	12	10.571	101.269	675.716	2

Table 8.3. Average BDF values for the three principal day functions in the minimal living and reworked complexes

a) British subsample (minimal living)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.983	.041	.009	.002	4.196	22
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
.803	1	.197	21.629	21.3	3

British subsample (minimal living plus carrier)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.985	.021	.005	4.294E-4	2.103	21
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
.906	1	.094	20.693	20.399	4

b) Colonial houses (minimal living)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.888	.073	.017	.005	8.193	19
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
.715	.98	.265	16.876	15.085	2

Colonial houses (minimal living plus carrier)

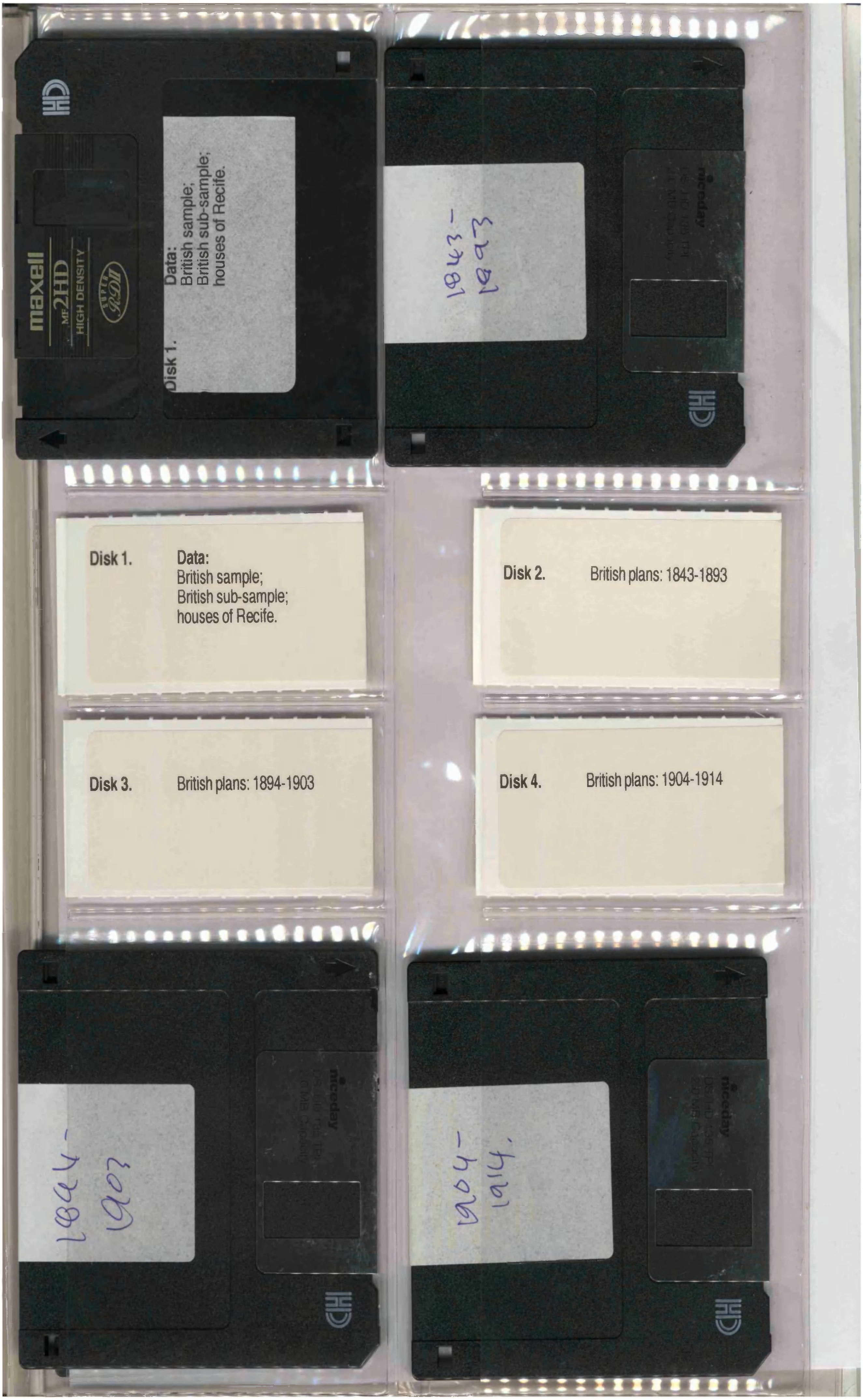
Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.926	.063	.014	.004	6.77	19
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
.78	.992	.212	17.589	16.354	2

c) Eclectic houses (minimal living)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.901	.09	.018	.008	10.037	24
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
.615	.98	.365	21.628	19.678	1

Eclectic houses (minimalliving plus carrier)

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.933	.059	.012	.004	6.36	24
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
.803	.999	.196	22.389	20.968	1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maxell
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1893
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British sub-sample;
houses of Recife.
Disk 2.
British plans: 1843-1893
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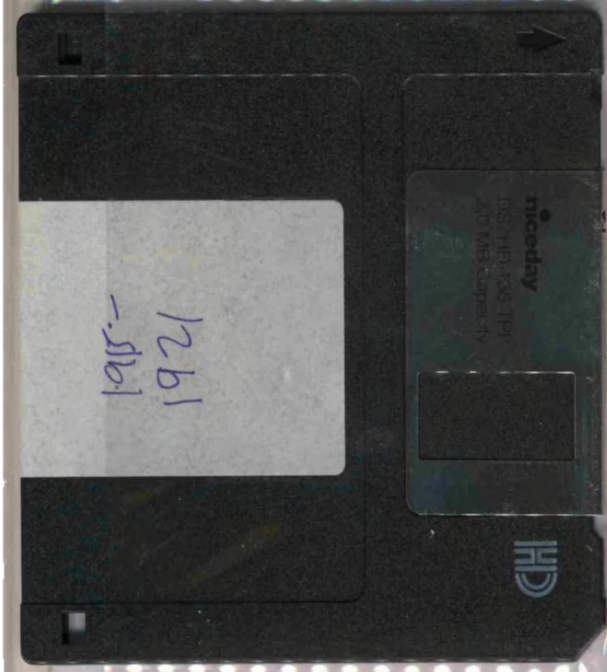
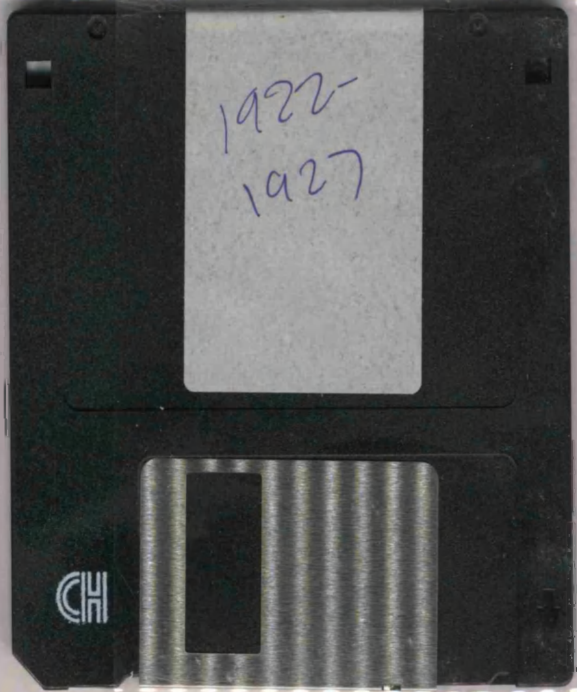
1914.
niceday





Disk 5. British plans: 1915-1921

Disk 6. British plans: 1922-1927

Disk 7. British plans: 1928-1930